iTec Swiss AG

Plant Engineering – Mechanical Engineering – Technical Engineering

iTec Swiss AG

iTec swiss

iTec Swiss in a nutshell

- *innovative Swiss engineering company - Starting out with more than 30 years of experience*
- *operating globally in the field of specialised construction*
- *batch and continuous mixing and compounding technology*
- *Our top-quality machines and plants are employed in sensitive industries like the automotive and aerospace industry.*
- *We also offer our services as general contractor in planning, design and assembly of entire plants.*
- *Our services include the construction of the machines, process automation, raw material handling and post processing steps.*
- *We can cover greenfield development, and we can implement our equipment solutions into existing infrastructure.*
- *With our swiss-made technology you achieve superior quality for your products.*

iTec Swiss AG

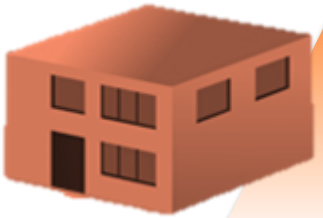
iTec Swiss Project Network

Client

- *One shop stop solution for our clients*
- *Total Customer Orientation*
- *Maximum Flexibility*
- *Small, High-Performance Organisation*

Long-Term Partnerships

- *Excellence in Manufacturing*
- *State of the art Production Facilities & Technologies*



iTec Swiss

- *Plant Layout*
- *Engineering*
- *Software Design*
- *Project Management*
- *Sourcing*
- *Quality Control*
- *After Sales Service*

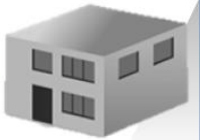
Mechanical Manufacturing Partners

Overview

iTec Swiss, Your partner for challenging tasks and implementations.

iTec Swiss Project-Network

Customer



Core compentencies

- Productionlayout
- Engineering
- Software Development & Design
- Projekt Management
- Purchasing
- Qualitycontrol
- After Sales Services

- Single source solution
  Only one contact point
- Complete focus on customers
- Very high flexibility
- Small and high efficient organisation

Longterm partnerships

- High precision manufacturing
- Production-technologies on the latest state of the art

Manufacturing-Partners

Multimix
Labor Reaktor-Planetary-Mixer

Labor Dispermill Discovery

Planetary Kneader Vertical PKV

From the lab- up to the production equipment,

from the simple Dissolver to the high complexity of a production site

IPSWISS TS 60

iTec Swiss
Rämerstrasse 14
CH-4314 Zeiningen

+41 61 816 80 80
www.itecswiss.ch
info@itecswiss.ch

PKV

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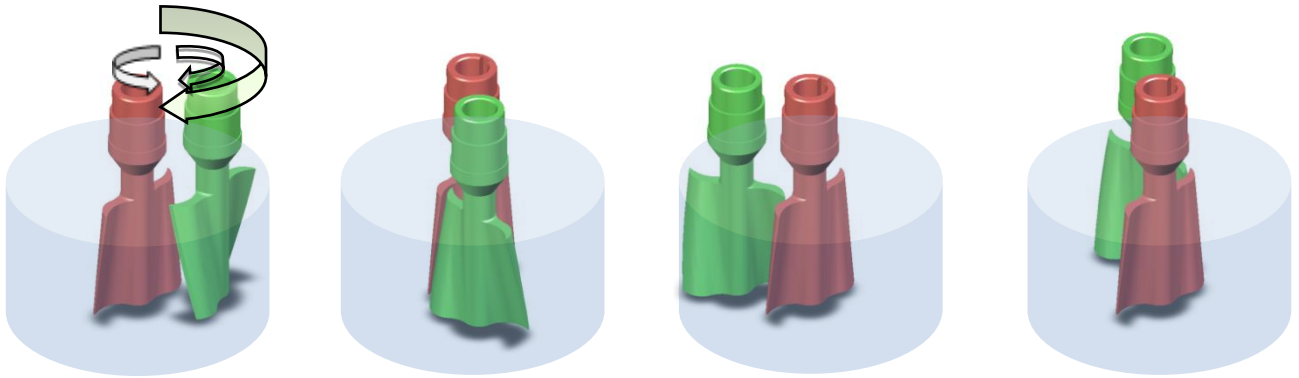
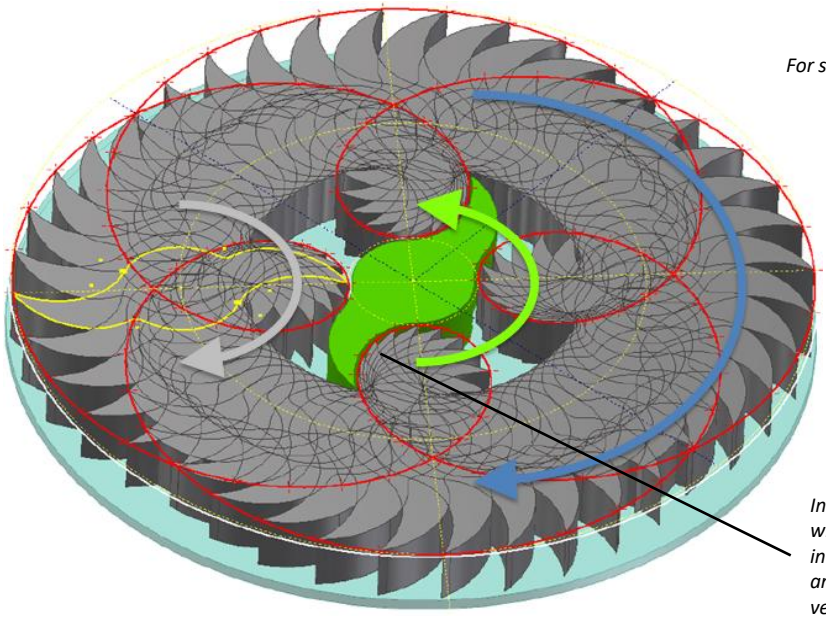
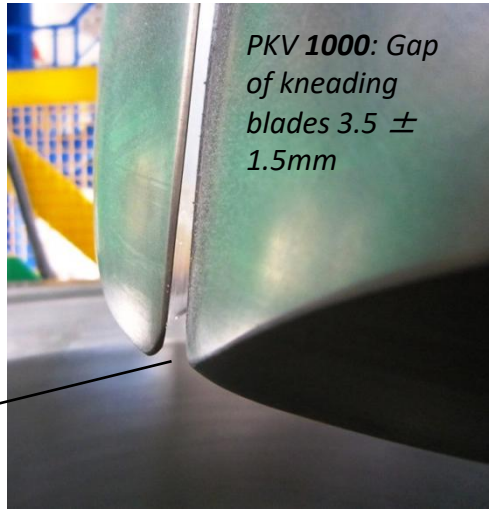
PKV: Movement of kneading blades





For simplicity of illustration, the central blade is shown stationary.

Intensive shear is created when the blades intermesh with each other and the wall of the mixing vessel



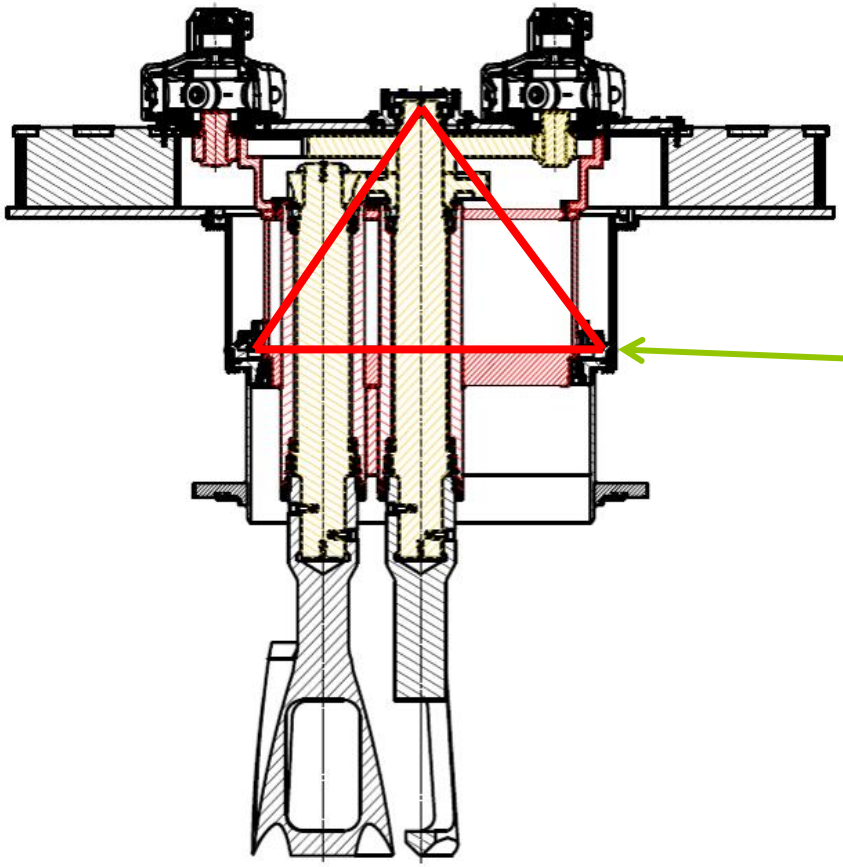
*PKV **1000**: Gap of kneading blades 3.5 ± 1.5mm*

Clearances

Clearances, Itec-standard	
Gap between:	
Blade tip to trough wall	5,5 ± 1,5mm
Between blades	5 ,5± 1,5mm
Bottom edge of blade to trough bottom	5,5 ± 1,5mm

PKV 2000: Gap of kneading blades 5,5 ± 1,5 mm

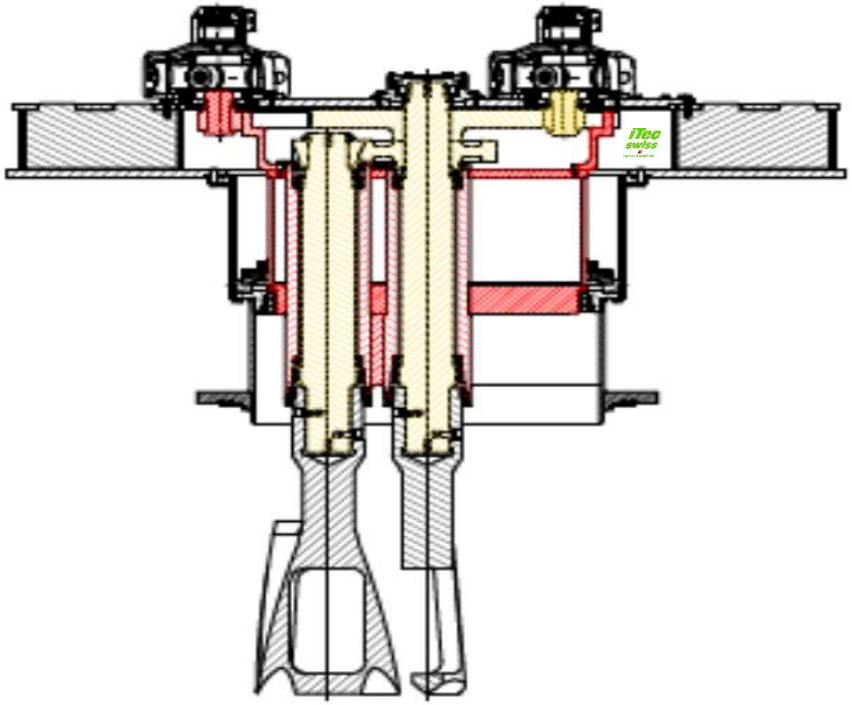
PKV - Gearbox



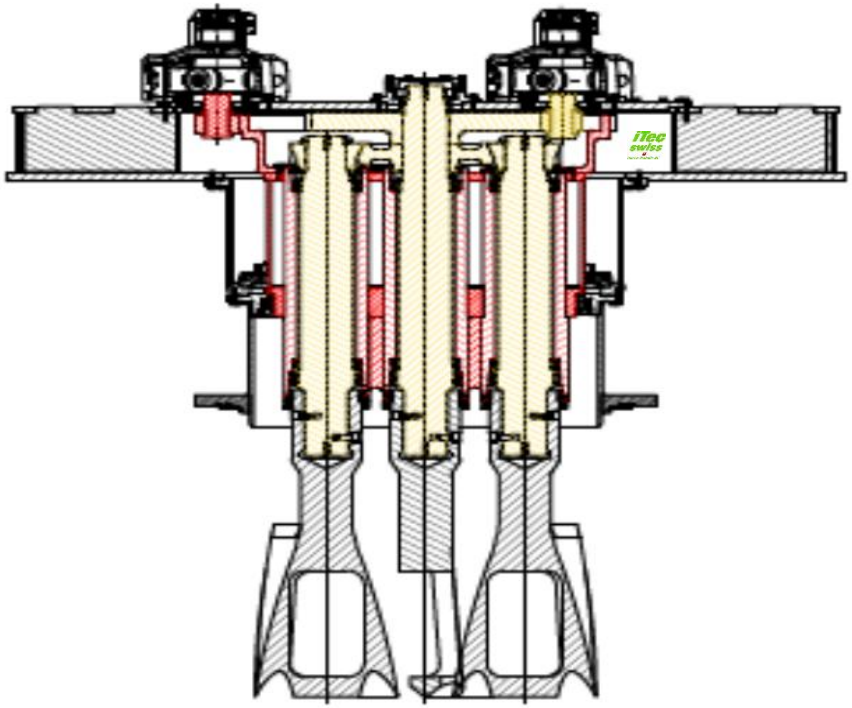
Comments:

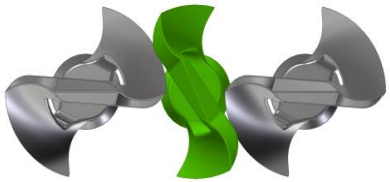
- **Compact design**
- **Few components, therefore less wear**
- **Lifetime grease package, hence low maintenance (no oil, thus no leakage risk**
- **High precision main bearing instead of plain bearing (iron bushing)**
- **Infinitely variable speed control**
- **High precision vacuum seals**
- **Vacuum applied only in the product chamber (not in the gear)**
- **Ball- and roller bearings made of standard series, thus fast delivery**
- **Extremely robust 3-point bearing support**
- **Transmission of high torques**
- **Gear class: 1, high precision gear box with high accuracy gear sets, with test record**
- **Greases feature a long lifetime**

PKV - Gearbox



1 up to 5000 litres





above 1000 litres

Quality of PKV

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Insight into the Manufacturing Quality at iTec Swiss – Kneaders

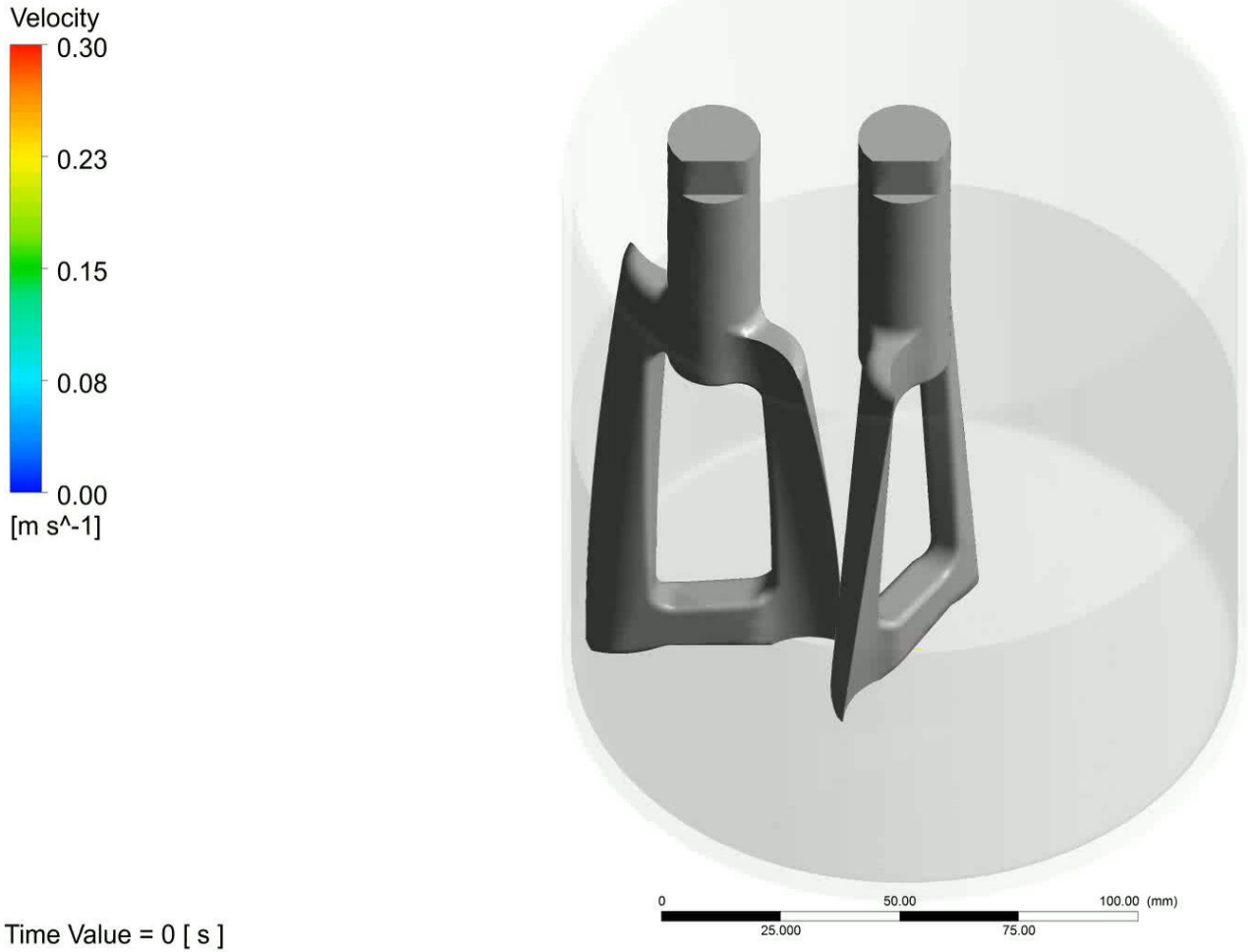
The manufacturing quality plays a decisive important key-roll within the product range of iTec Swiss.

Special coating as an additional wear protection

Measurement of gap distance between the two shovel

System of PKV

System of PKV



PKV1

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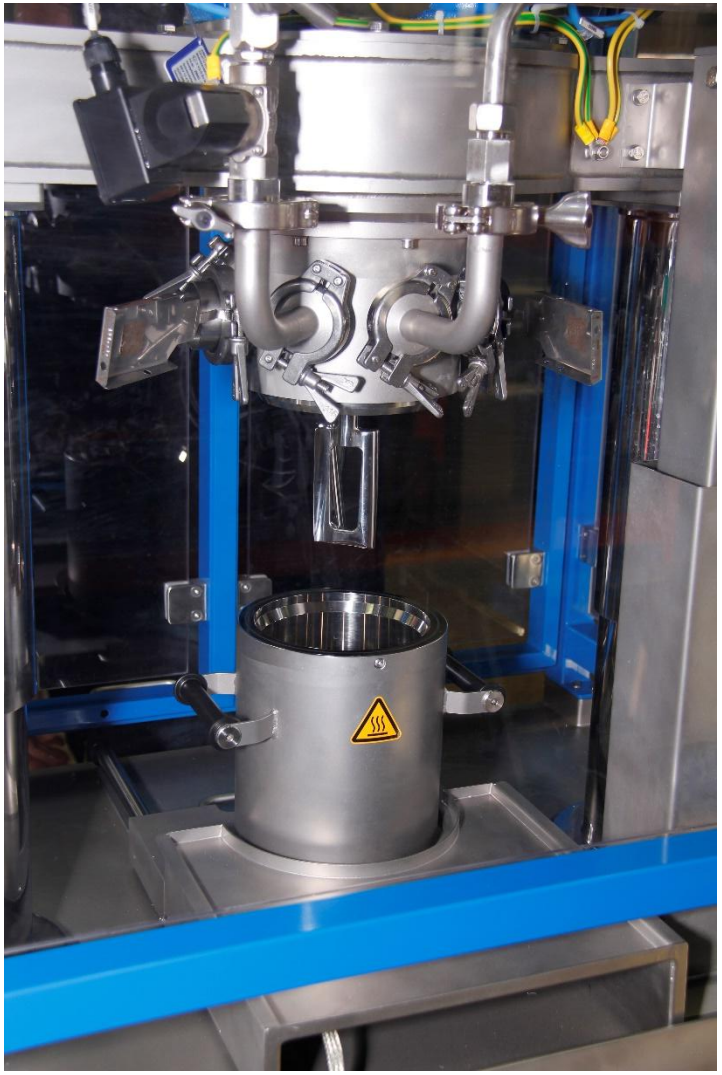
PKV2

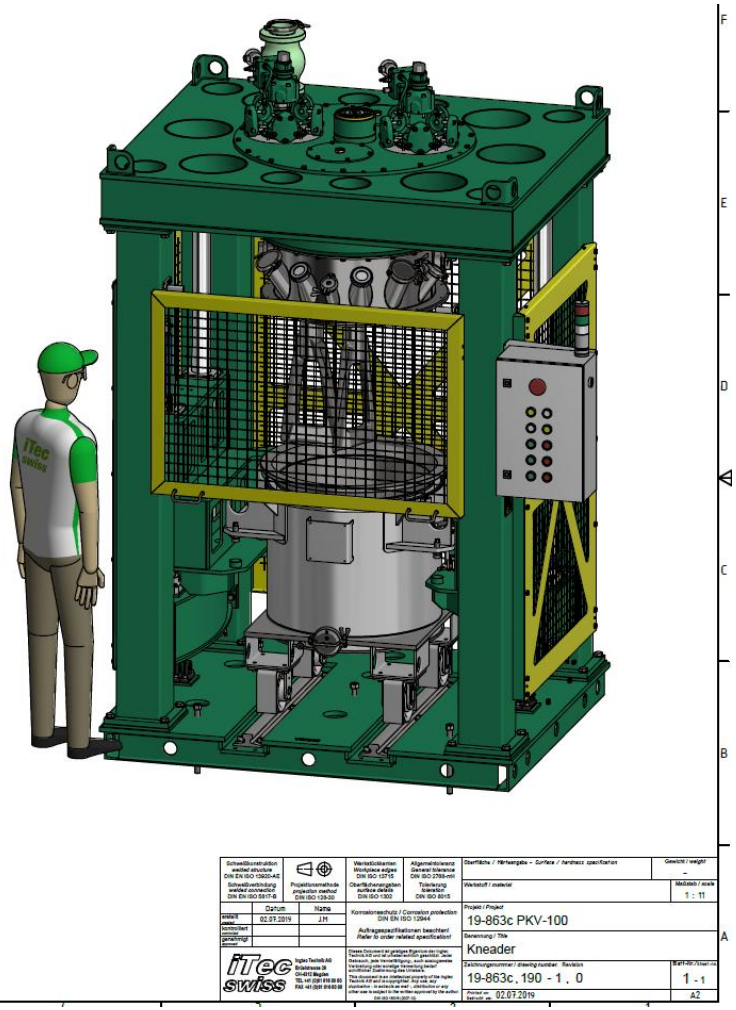
iTec swiss



PKV50

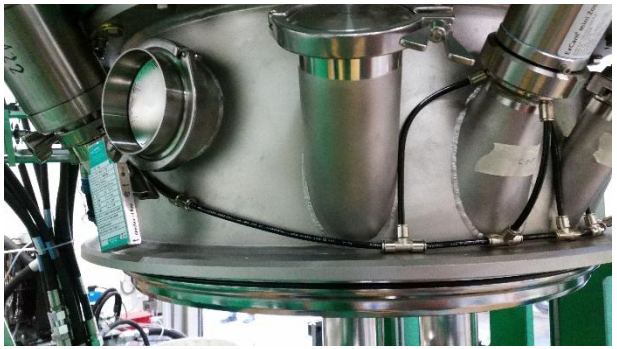
iTec swiss

PKV100



Schweißkonstruktion welded structure DIN EN ISO 13920-AC		Projektionsmethode projection method DIN ISO 128-30	Werkstückkanten Workpiece edges DIN ISO 13715	Allgemeintoleranz General tolerance DIN ISO 2768-mH	Oberfläche / Härteangabe – Surface / hardness specification		Gewicht / weight –
Schweißverbindung welded connection DIN EN ISO 5817-B			Oberflächenangaben surface details DIN ISO 1302	Toleranz tolerance DIN ISO 8015	Werkstoff / material		Maßstab / scale 1 : 11
	Datum	Name	Korrosionsschutz / Corrosion protection DIN EN ISO 12944		Projekt / Project 19-863c PKV-100		
erstellt	02.07.2019	J.H	Auftragsspezifikationen beachten! Refer to order related specifications!		Benennung / Title Kneader		
kontrolliert					Zeichnungsnummer / drawing number Revision 19-863c , 190 - 1 , 0		Blatt-Nr./Sheet-no. 1 - 1
genehmigt					Printed on: 02.07.2019 Format: A3		A2

PKV200

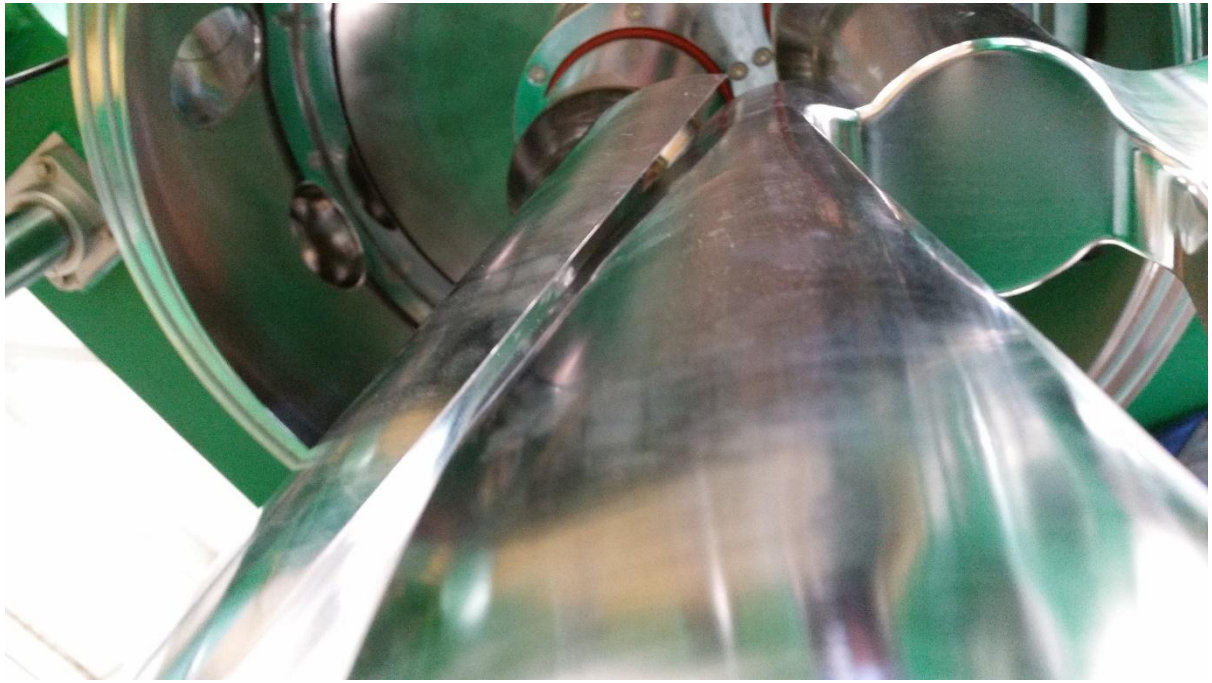


PKV200

iTec swiss

PKV200

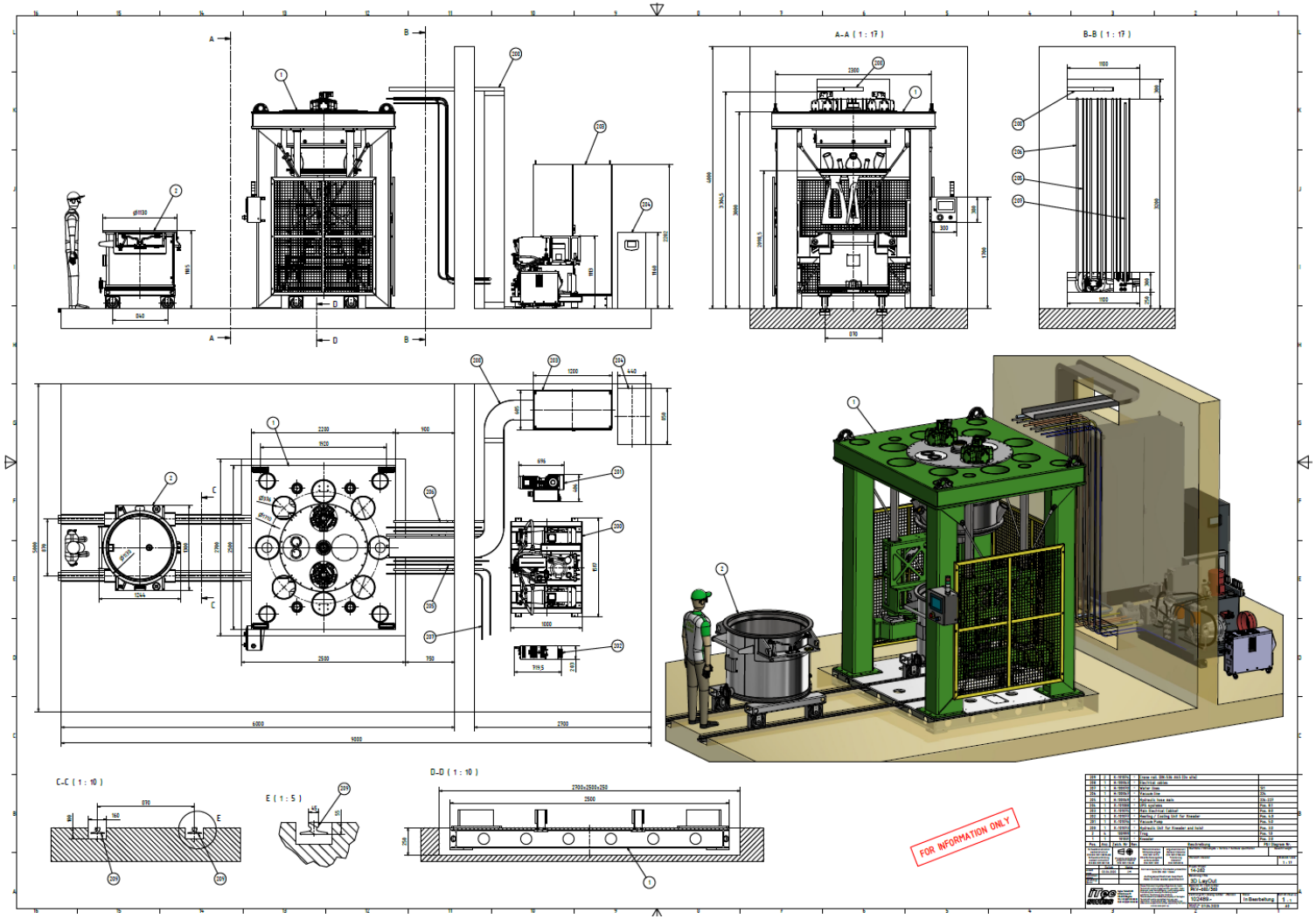
iTec swiss



PKV200

iTec swiss

PKV600



Plant Engineering – Mechanical Engineering – Technical Engineering

PKV600

PKV1000

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Specification and Capacity

PKV 2000 Capacity

Total: 2'000 Liter

Usable Volume, optionally:

50% 1'000 Liter

60% 1'200 Liter

PKV2000

iTec swiss

Dimension, weight and installed Capacity

PKV 2000 Main Dimension

L X W x H, approx: [mm]	*3200 x 2750 x 4465*

***PKV 2000 Weight**:*

Kneader, net, approx.:	*14,100 kg*
Trough, net, approx.:	*2,500 kg*

Installed capacity hydraulic drive:

Central drive, approx.:	*75 kW*
Planetary drive, approx.:	*75/90 kW*

PKV5000

iTec swiss

PKV5000

iTec swiss

PKV5000

iTec swiss

Specification and Capacity

PKV 5000 Capacity

Total: 5'000 Liter

Usable Volume, optionally:

50% 2'500 Liter

60% 3'000 Liter

Options from us…

- Discharge press
- Twin Screw Extruder
- Trough cleaning machine
- 3D Feeding Technology for:
  - solid raw materials
  - liquid raw materials
  - Control
- Extra troughs
- Mover for troughs
- Steel structure

Press

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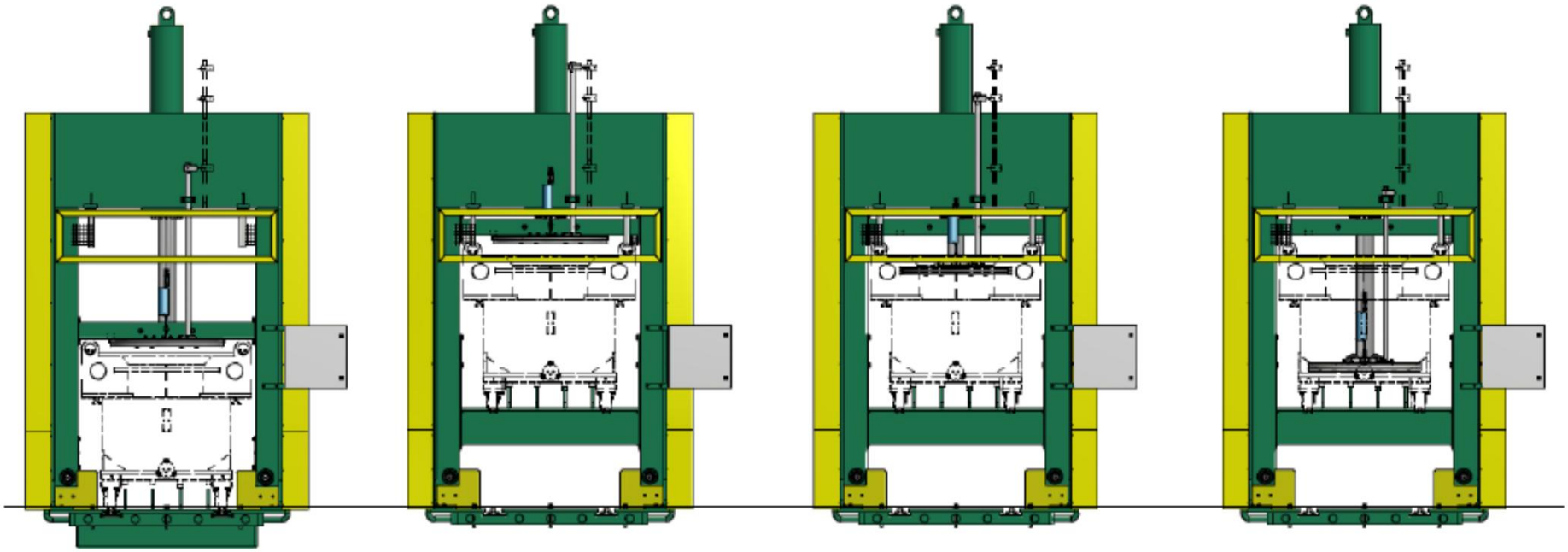
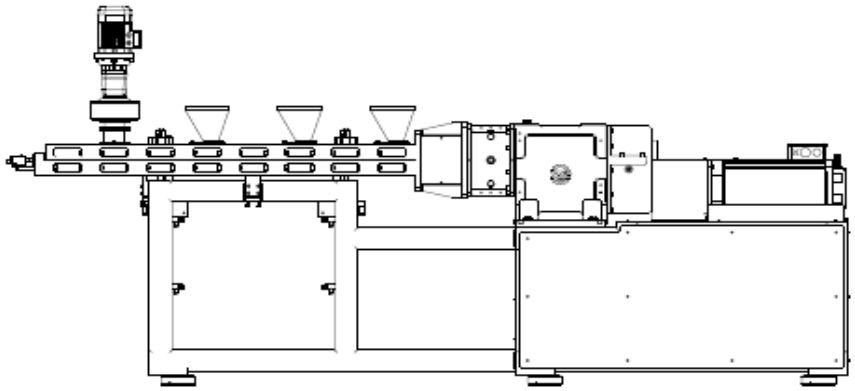


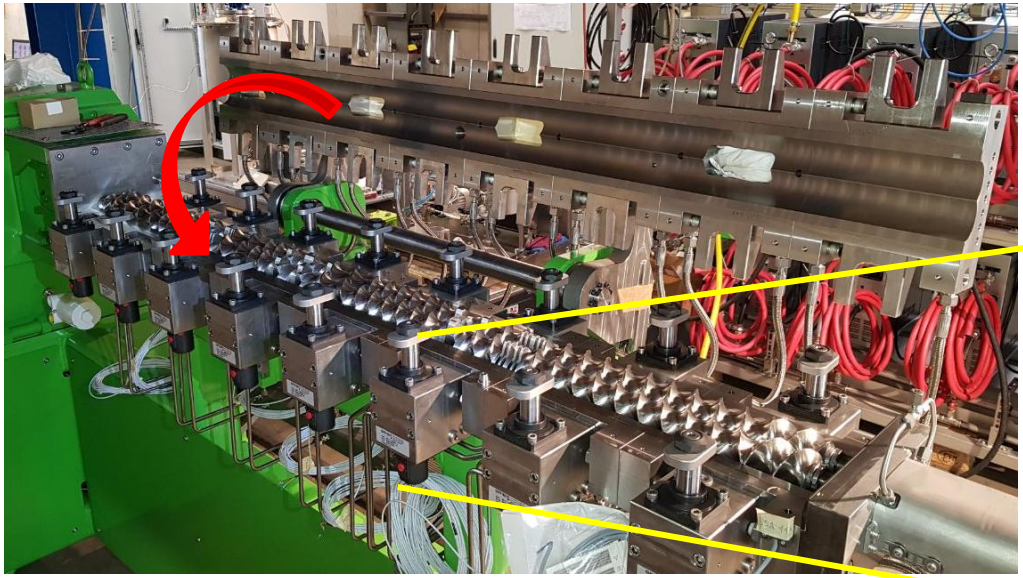
Press

Twin Screw Extruder

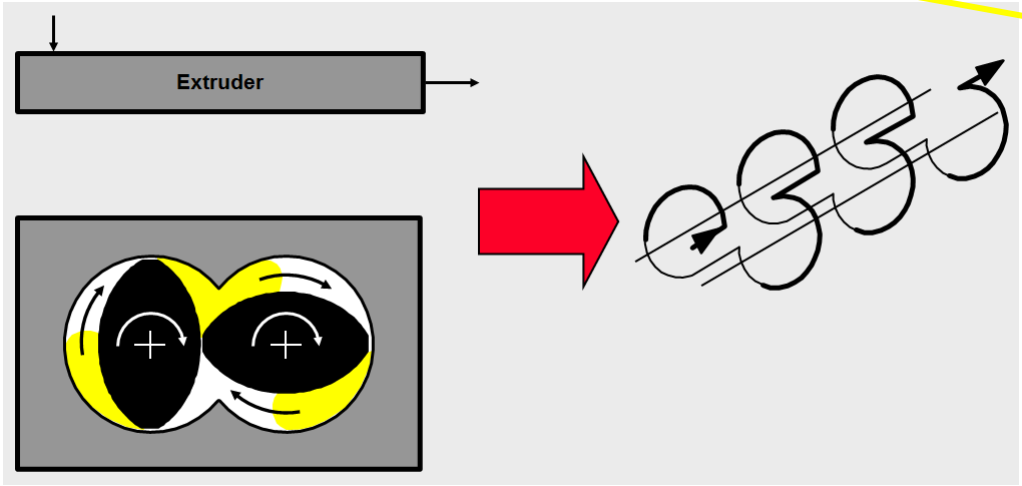
Type	Screw-Ø mm	Flight depth	Screw speed rpm	Output in kg/h	Drive power kW	Torque Nm	Axis height mm
IPE-TS 20	20	7.5	200	10 – 20	3,6	2 x 80	1140
IPE-TS 60	60	13.1	200	50 – 100	50,0	2 x 1100	1200
IPE-TS 98	98	21.7	200	100 – 220	100,0	2 x 4200	1400
IPE-TS 125	125	27.5	200	220 – 500	220,0	2 x 10000	1400



Twin Screw Extruder



Twin Screw Extruder suitable for high-viscous materials with folding half barrel design



Flow Pattern of the material inside the corotating Twin Screw Extruder

Labor TS20

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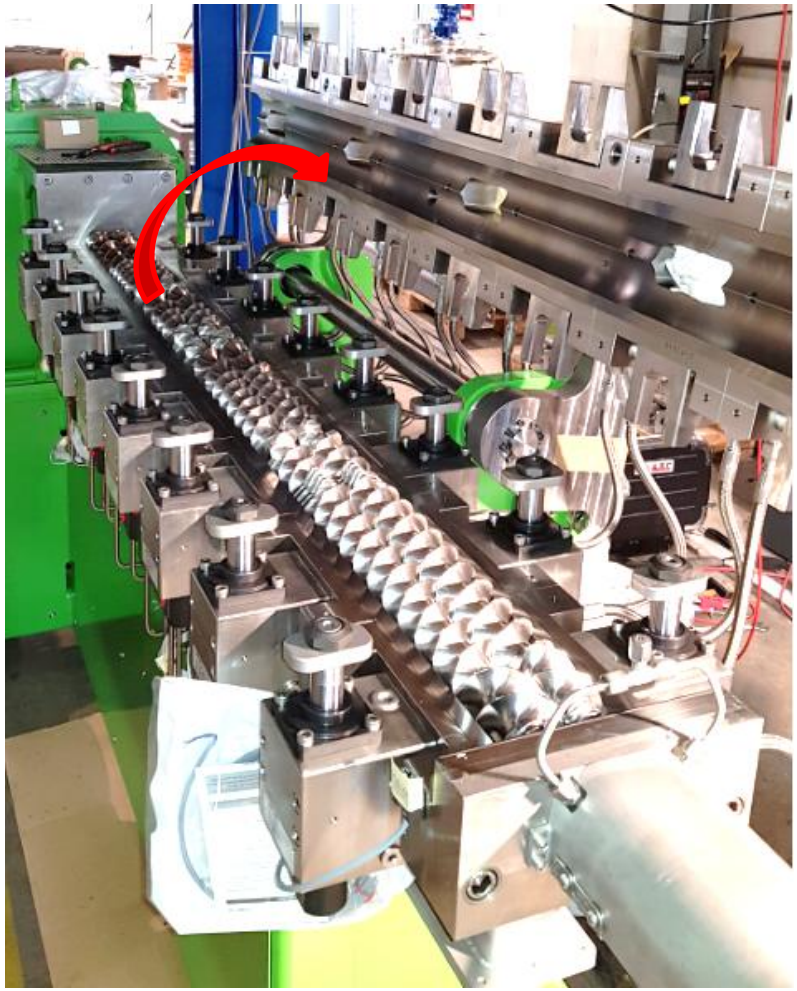
Production TS60

iTec swiss

Production TS60



Open twin-screw-extruder

Silos with filling station,
for manual and for automated refill.

Production TS98

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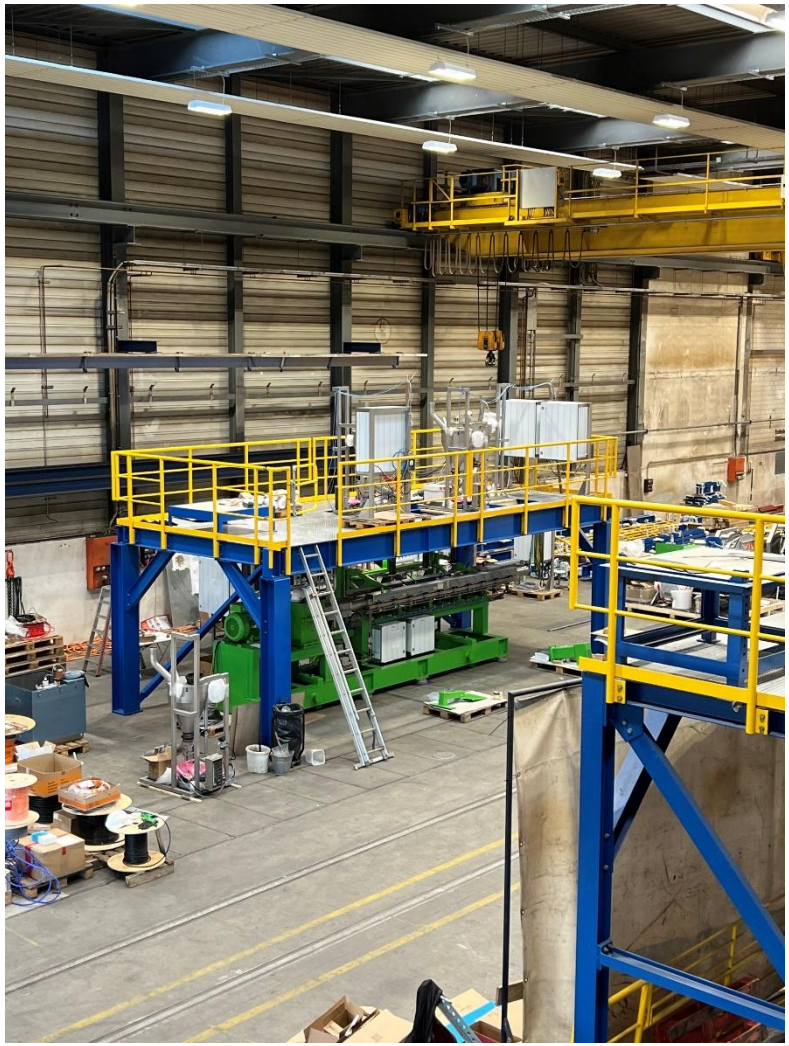
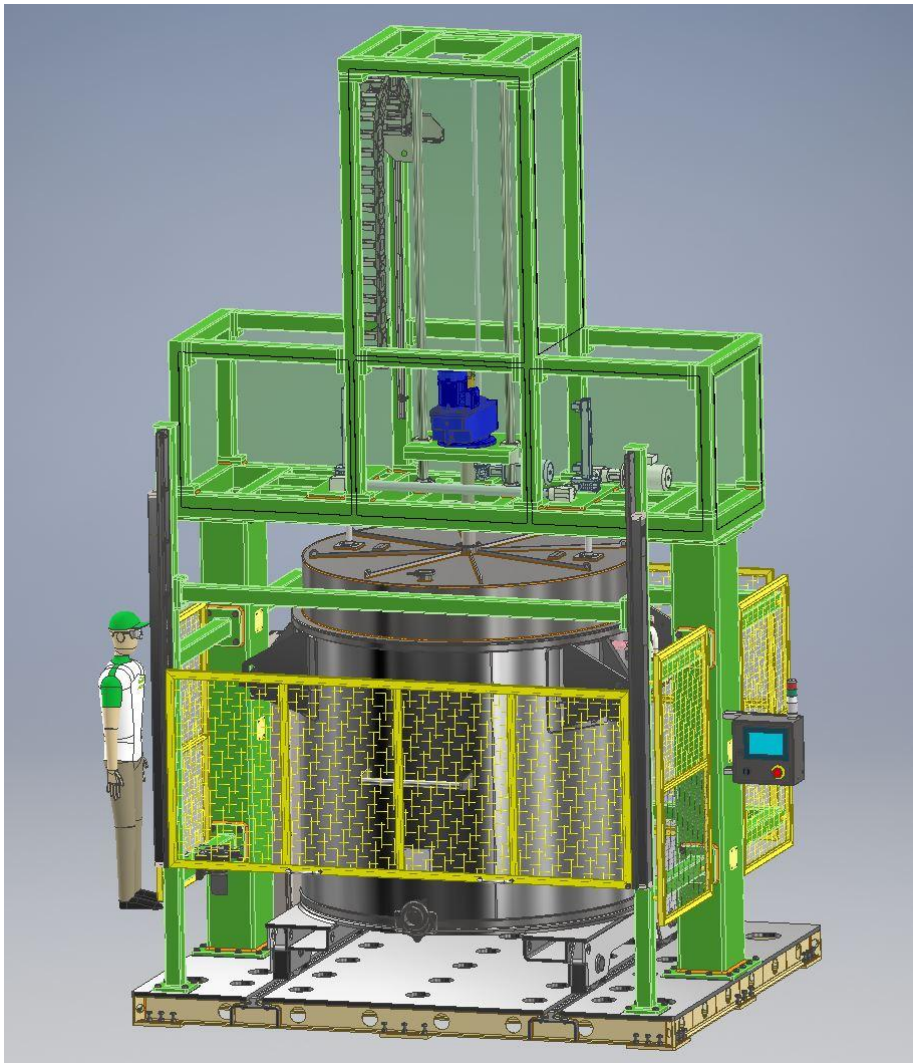
Production TS98

iTec swiss

Production TS98



Troughs Washing Station

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TWA 5000
User:
Anonymous
Sequenz Auswählen und quittieren Drücken
Sequenez Auswählen
Light
Mit Drying Aid Function
Glanzspülung
Starte Sequenez vom Panel
Starte Sequenz von HMI
Sequenz abbrechen
Starte Sequenez vom PC
Starte Sequenz von PC
Trog entleeren
Aktuelle Squenez
LIGHT
Aktuelles Program
Wiper Cleaning
30. Sep. 2020
20:08:27

TWS

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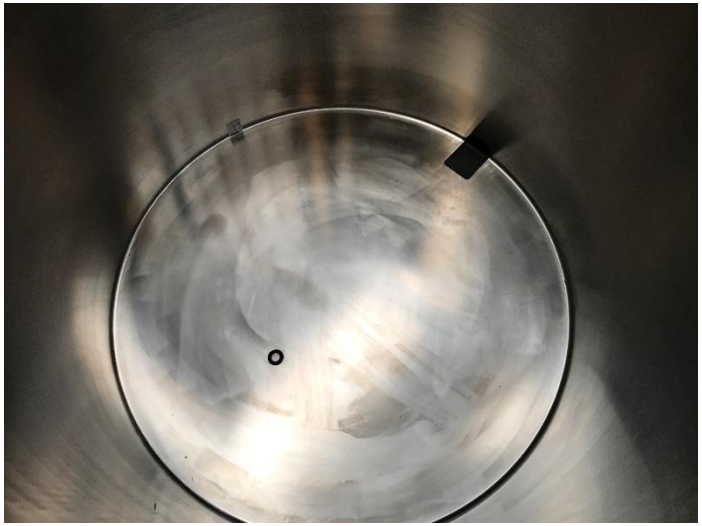
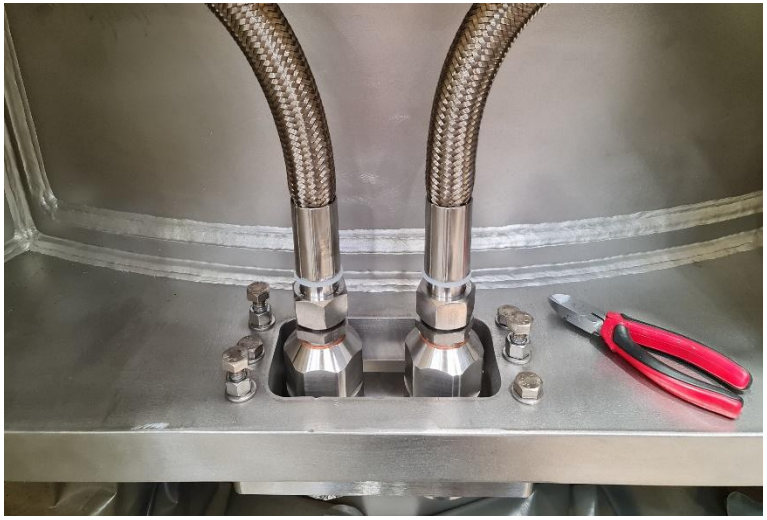
3D Dosing Technology

3D Dosing Technology

Ex-zone filter

Trough

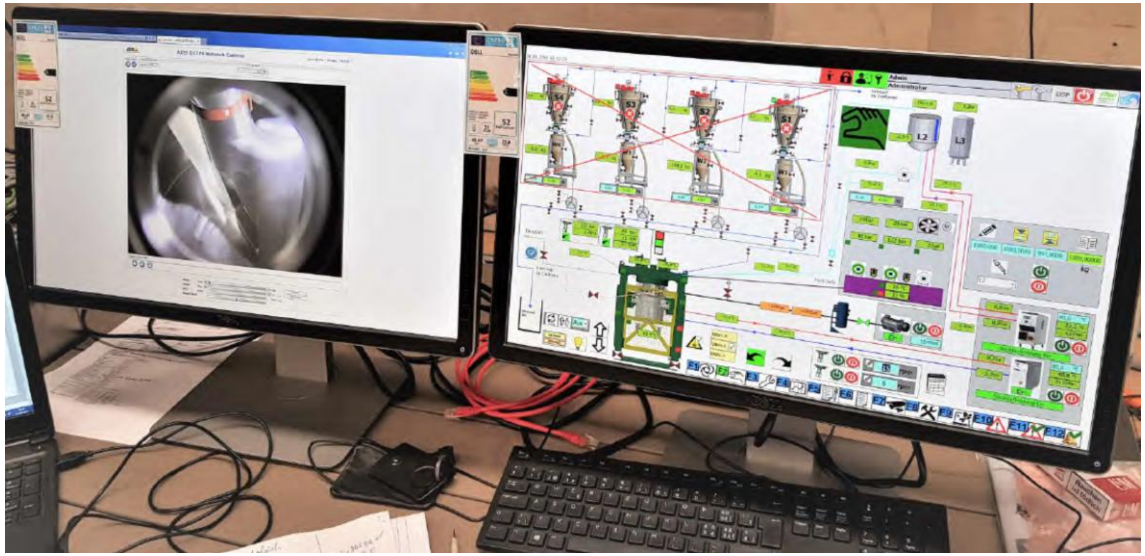




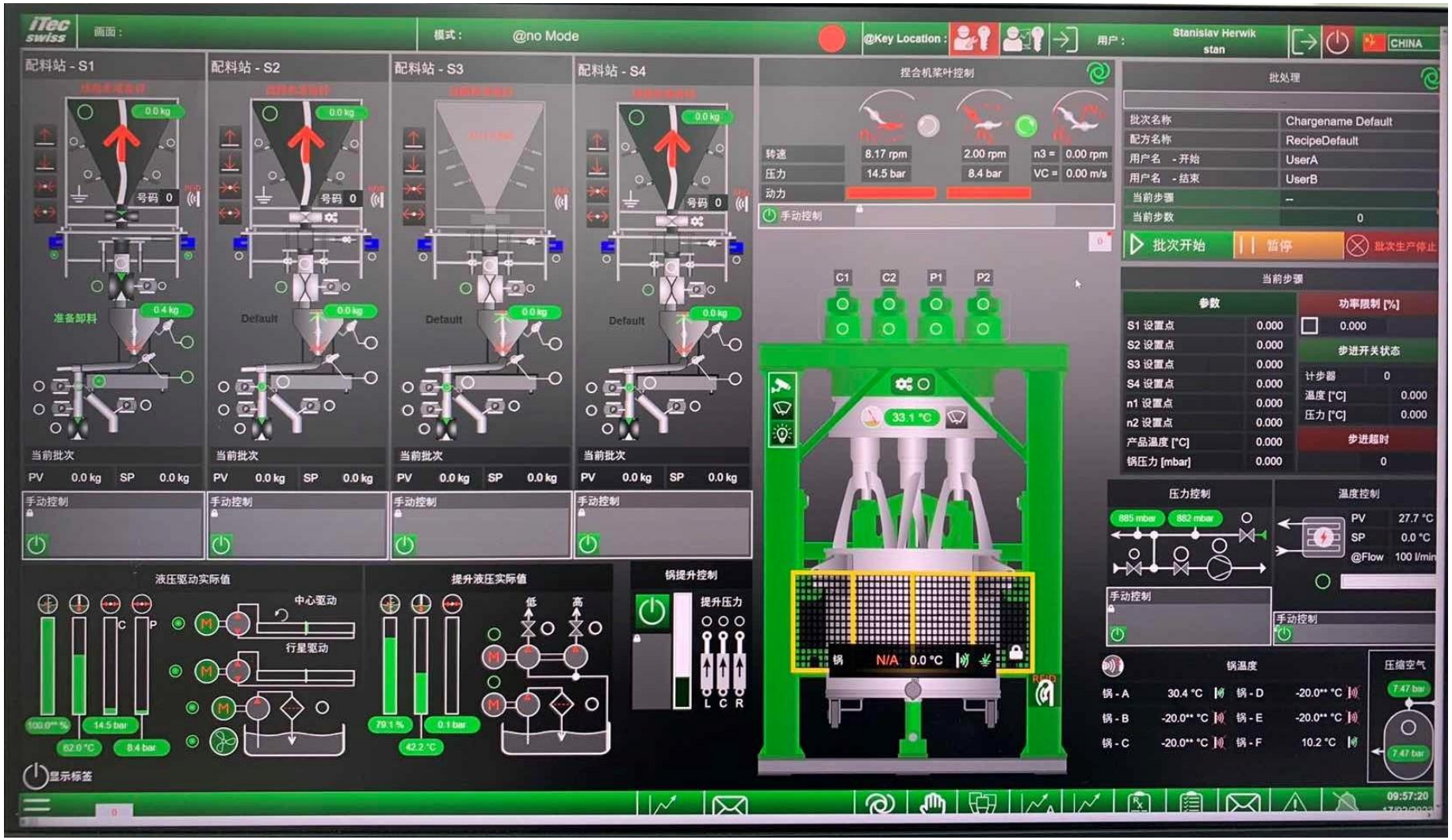
Mover

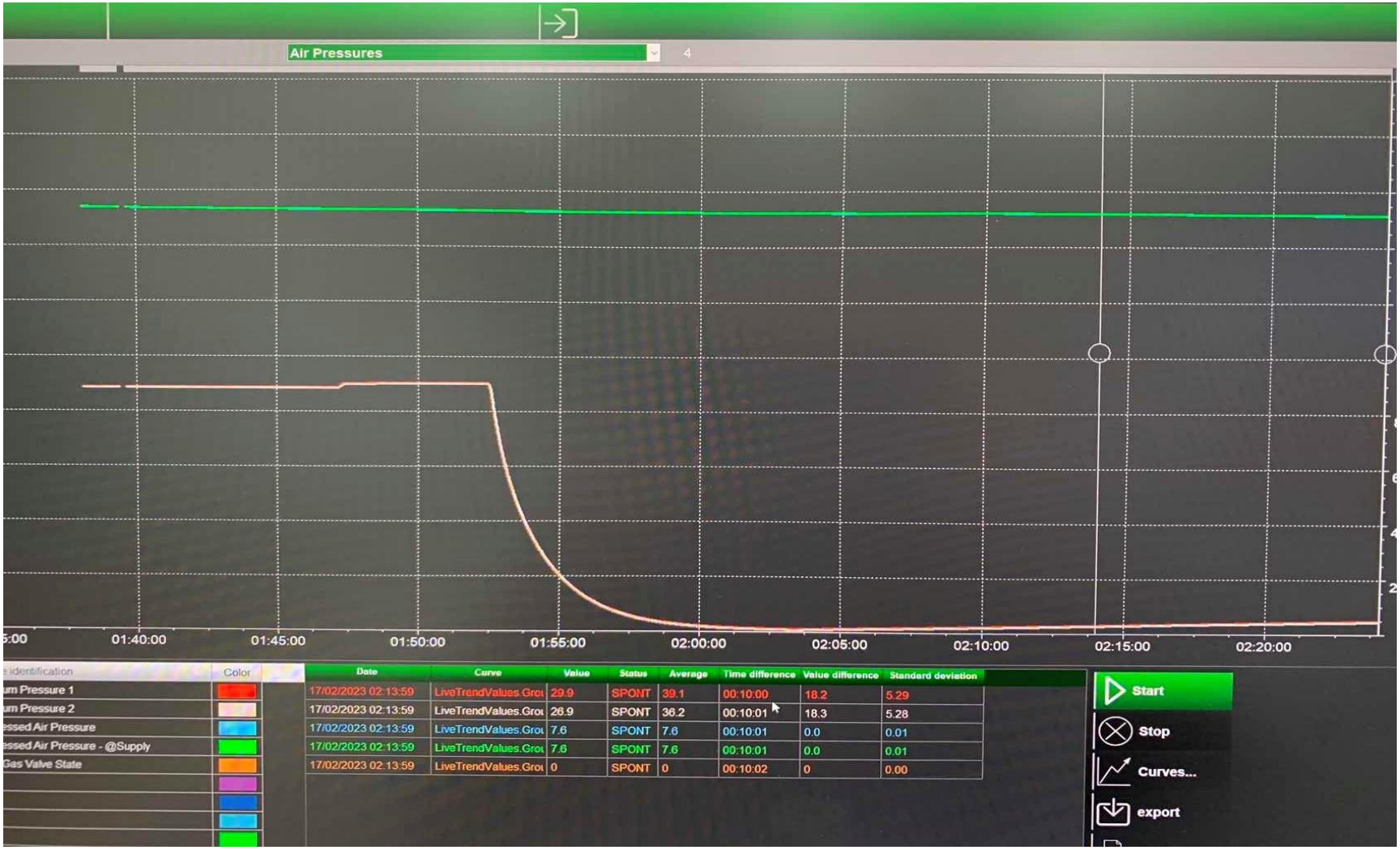
PLC with visualisation

Control in Remote Control Room



Local Panel


画面：
模式：
@no Mode
@Key Location :
用户：
Stanislav Herwik
stan
CHINA
配料站 - S1
配料站 - S2
配料站 - S3
配料站 - S4
搅合机桨叶控制
转速
8.17 rpm
2.00 rpm
n3 =
0.00 rpm
压力
14.5 bar
8.4 bar
VC =
0.00 m/s
动力
手动控制
批处理
批次名称
Chargename Default
配方名称
RecipeDefault
用户名 - 开始
UserA
用户名 - 结束
UserB
当前步骤
当前步数
批次开始
暂停
批次生产停止
当前步骤
参数
功率限制 [%]
S1 设置点
S2 设置点
S3 设置点
S4 设置点
n1 设置点
n2 设置点
产品温度 [°C]
锅压力 [mbar]
步进开关状态
计步器
温度 [°C]
压力 [°C]
步进超时
当前批次
PV
SP
准备卸料
Default
液压驱动实际值
中心驱动
行星驱动
提升液压实际值
锅提升控制
提升压力
C1
C2
P1
P2
33.1 °C
锅
N/A
0.0 °C
压力控制
885 mbar
882 mbar
温度控制
PV
27.7 °C
SP
0.0 °C
@Flow
100 l/min
锅温度
锅 - A
30.4 °C
锅 - D
-20.0** °C
锅 - B
-20.0** °C
锅 - E
-20.0** °C
锅 - C
-20.0** °C
锅 - F
10.2 °C
压缩空气
7.47 bar
显示标签
09:57:20


Air Pressures
4
01:40:00
01:45:00
01:50:00
01:55:00
02:00:00
02:05:00
02:10:00
02:15:00
02:20:00
identification
Color
um Pressure 1
um Pressure 2
essed Air Pressure
essed Air Pressure - @Supply
Gas Valve State
Date
Curve
Value
Status
Average
Time difference
Value difference
Standard deviation
17/02/2023 02:13:59
LiveTrendValues.Grou
29.9
SPONT
39.1
00:10:00
18.2
5.29
26.9
36.2
00:10:01
18.3
5.28
7.6
7.6
00:10:01
0.0
0.01
0
0
00:10:02
0.00
Start
Stop
Curves...
export

BATCH PROTOCOL

Recipe name: Rezepte

Batch started by Admin **at the** 07/08/2018 14:00:48
Batch finished by Admin **at the** 07/08/2018 14:07:36

Signatures / comments:

Checked: _____

Date: _____

Extruder temperature zones

Zone:	Setpoint:		Actual value:	
Temperature Zone 1:	10.000	°C	0.000	°C
Temperature Zone 2:	20.000	°C	0.000	°C
Temperature Zone 3:	30.000	°C	0.000	°C
Temperature Zone 4:	40.000	kg	0.000	°C
Temperature Zone 5:	50.000	°C	0.000	°C
Temperature Zone 6:	60.000	°C	0.000	°C
Temperature Zone 7:	70.000	°C	0.000	°C
Temperature Zone 8:	70.000	°C	0.000	°C
Temperature Zone 9:	0.000	°C	0.000	°C

General parameters

Parameters:	Setpoint:		Actual value:	
Extruder stop time	15	S	15	S
Extruder feed speed:	0	%	0	kg
Extruder lead time:	10	S	10	S
Ramp-up time:	11	S	11	S
Component Value:	11	S	11	S

printed: 07/08/2018 15:45:57 Page 3

UPS

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Power failure:

The UPS maintains the PLC system for a limited time (about 15 minutes as standard depending on process).

In the case of a power return, the interrupted processes (recipe procedure, kneading blade rotation, temperature control, vacuum) are not automatically restarted, but remain in a powerless state.

These processes must be restarted by the user.

Maintenance

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Maintenance	Interval
Visual inspection of the kneader for visible damage	1 x per week
Visual inspection of the bearing points and guides	1 x per week
Check screws for tightness and if necessary tighten	1 x per week
Cleaning the air filter of the vacuum pump	1 x per week
Check / draqin FRL compressed air	1 x per week
Vacuum oil level	1 x monthly or in accordance with manufacturer
UPS-Check system battery life	1 x monthly or in accordance with manufacturer
Lubricate grease nipple for large slewing ring with our lubricate plan	After 250 operating hours, then every 1000 hours
Gearing grease of the planetary gear (gear lubrication holes)	After 250 operating hours, then every 1000 hours
Oil from the hydraulic unit for stroke and kneader driving	500 operating hours after first filling, then every 2000 operating hours or min. 1x per year (see hydraulic diagram for kneader driving)
Oil filters for hydraulic unit of stroke and kneader driving	500 operating hours after first filling, then every 2000 operating hours or min. 1x per year (see hydraulic diagram for kneader driving))
Lubricate grease nipples for bearings of the planetary gear with our lubricate plan	Every 1000 operating hours
Change the air filter of the vacuum pump	Every 4 months
Lubrication of the guide carriage of the lifting device via grease nipple with our lubricate plan	Every 6 months
Filter elements dust filter	After 1 month, then semi-annually
Kneading trough seal	If necessary, according to the spare parts list
Please refer to the instruction manual of the thermostats for the maintenance of the temperature control unit	Annex C
We recommend a general overhaul of the system after 3 years	3 Years

Maintenance

iTec swiss

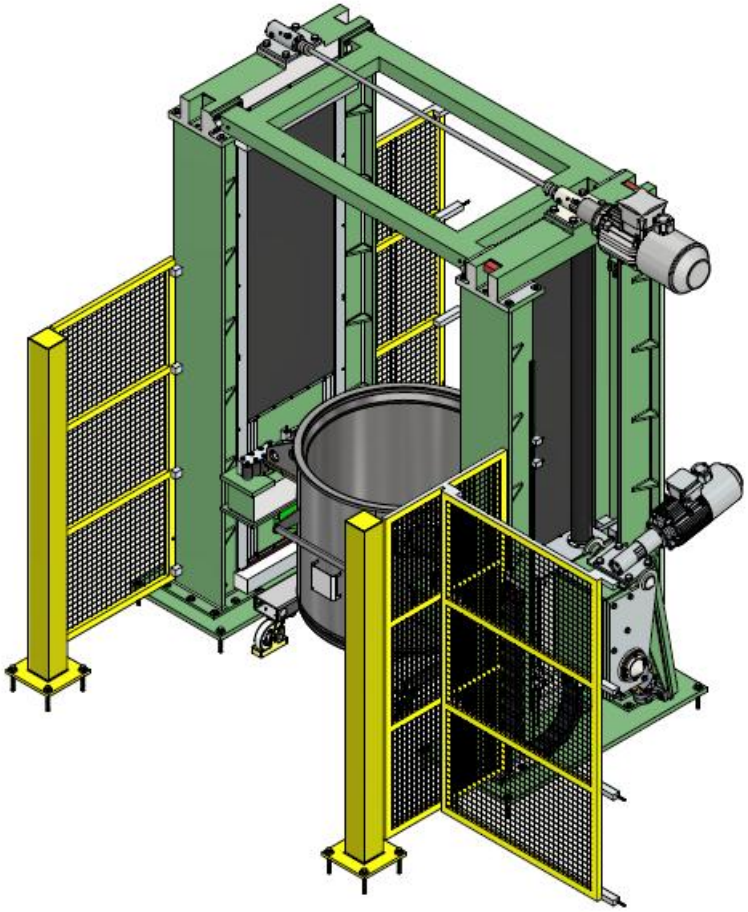
Wear-Measurement of Bearing (long-term security)

A patented integrated wear measuring device (so called IWM) offers an online examination of the maximum tolerated axial clearance of the bearing. Operation interruptions are **not** necessary. Service personnel can measure the current wear rate at any time by manual actuation on the measuring unit.

A signal indicates when the maximum wear is reached.

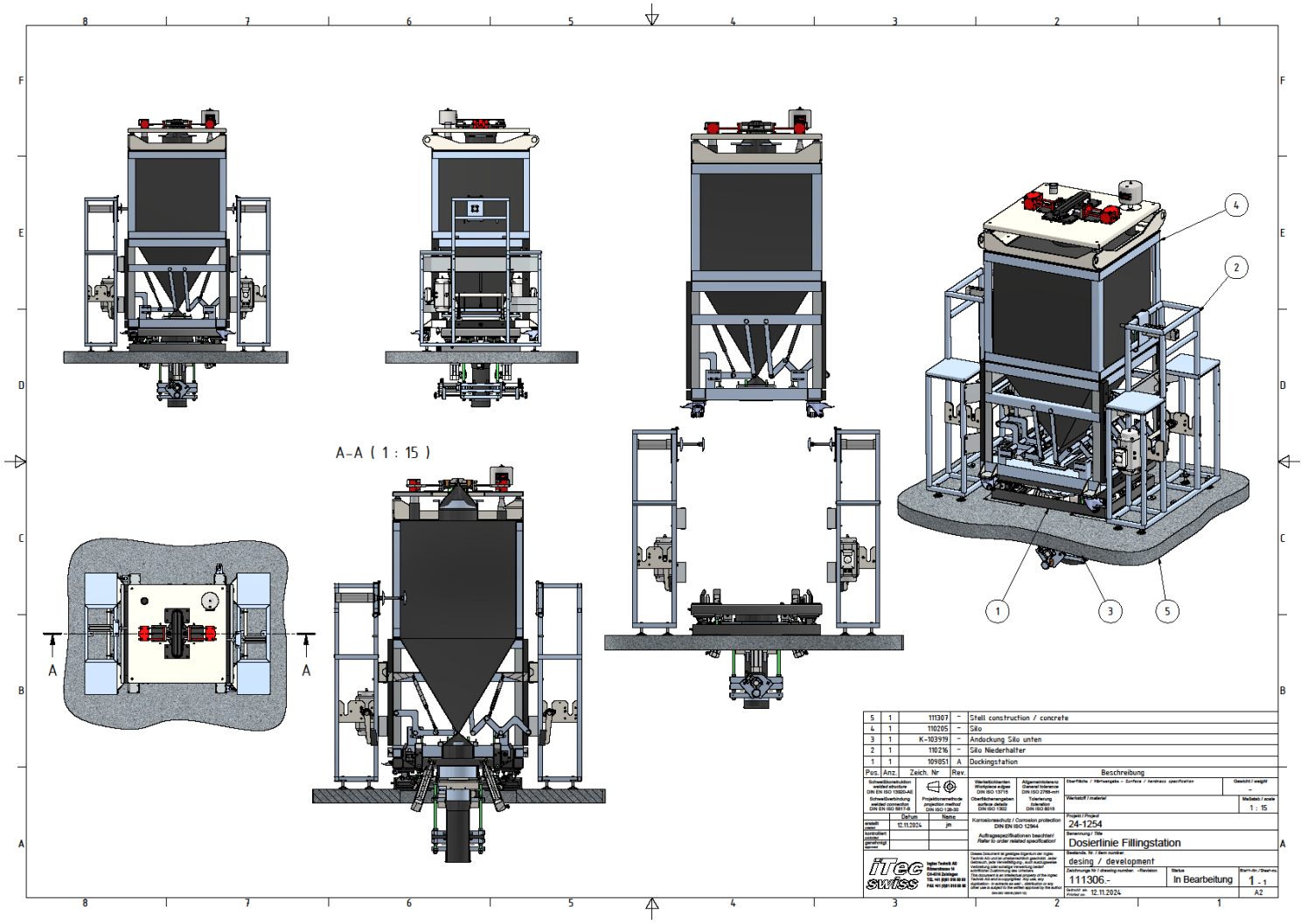
By using this IWM the costs for the maintenance personnel are minimised.

Trough Tilting



Trough Tilting

Mobile Silo with docking



Pos.	Anz.	Zeich. Nr	Rev.	Beschreibung
5	1	111307	-	Stell construction / concrete
4	1	110205	-	Silo
3	1	K-103919	-	Andockung Silo unten
2	1	110216	-	Silo Niederhalter
1	1	109851	A	Dockingstation

	Datum	Name
erstellt	12.11.2024	jm
kontrolliert		
freigegeben		

Auftragsspezifikationen beachten! / Refer to order related specification!

Project / Project: 24-1254
Benennung / Title: Dosierlinie Fillingstation
Bestands-Nr. / Item number: desing / development
Zeichnungs-Nr. / drawing number: 111306.-
Revision:
Status: In Bearbeitung
Blatt-Nr. / Sheet-no.: 1 -1
Gedruckt am / Printed on: 12.11.2024
A2

Mobile Silo with docking

Barrel tilting station

Thank you for your kind attention.

iTec Swiss Team