

Leifeld Metal Spinning AG

Solutions for Manufacturers in the Automotive Industry



eckotech®



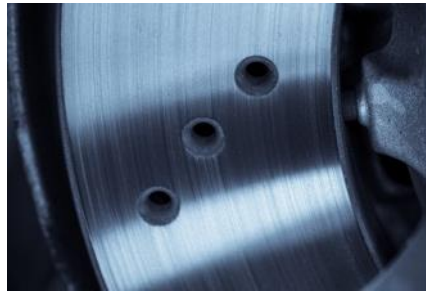
Leifeld - Fields of Application



Transmission



Wheels



Brakes

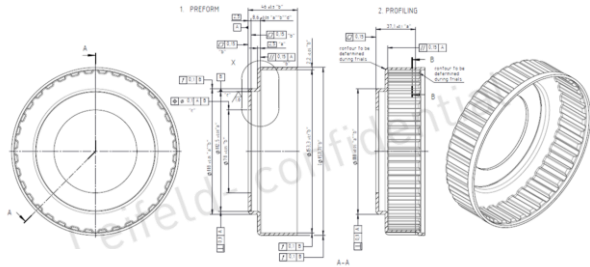


Tanks

Solutions for drive components

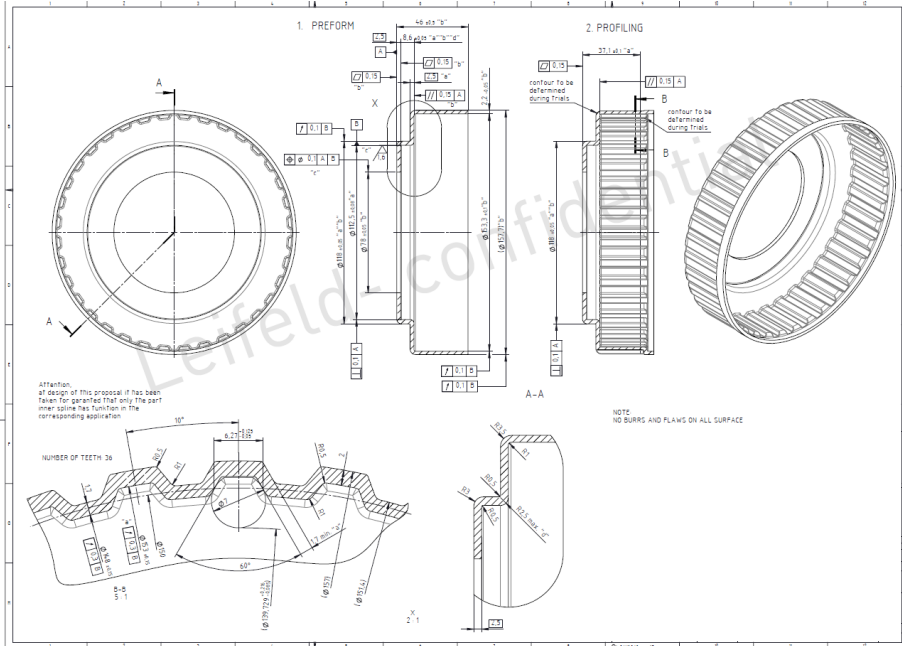


- We develop solutions for forming gear and motor components such as motor disc carriers, double clutch housings, hollow shafts, starter gears and pulleys.
- Our machines perform spinning, flow forming and/or profiling of drive components, as far as possible in a single clamping.
- Numerous Leifeld machines for drive technology are in use all over the world.



- Clutch housing with internal and external splines
- The preform is clamped between the top and bottom tools of the machining station. The forming roller (tooth roller) is advanced radially.
- Our GPC series is ideally suited to the production of splined gear parts.

Clutch housing



MessProtokoll		Leifeld Metal Spinning GmbH Feldstraße 2-20 59229 Ahlen		LEIFELD	
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Nr.	Merkmal	Nennwert	Tol oben	Tol unten	Istwert	Abweichung	Ausnützung
Ø 148 und Rundheit auf Höhe 16mm ermittelt							
1	Diameter	D 148,000	0.150	-0.150	D 148,008	0.008	6% -----*
2	Circularity	0.000	t= 0.150		0.032	0.032	22% -*------
Ø 148 und Rundheit auf Höhe 22mm ermittelt							
3	Diameter	D 148,000	0.150	-0.150	D 148,053	0.053	35% -----*
4	Circularity	0.000	t= 0.150		0.043	0.043	28% -*------
Ø 148 und Rundheit auf Höhe 30mm ermittelt							
5	Diameter	D 148,000	0.150	-0.150	D 148,076	0.076	51% -----*
6	Circularity	0.000	t= 0.150		0.053	0.053	35% -*------
Ø 148 und Rundheit auf Höhe 36mm ermittelt							
7	Diameter	D 148,000	0.150	-0.150	D 148,089	0.089	59% -----*
8	Circularity	0.000	t= 0.150		0.058	0.058	39% -*------
Ø 153 und Rundheit auf Höhe 16mm ermittelt							
9	Diameter	D 153,000	0.150	-0.150	D 152,917	-0.083	-55% -----*
10	Circularity	0.000	t= 0.150		0.051	0.051	34% -*------
Ø 153 und Rundheit auf Höhe 22mm ermittelt							
11	Diameter	D 153,000	0.150	-0.150	D 153,058	0.058	39% -----*
12	Circularity	0.000	t= 0.150		0.041	0.041	27% -*------
Ø 153 und Rundheit auf Höhe 30mm ermittelt							
13	Diameter	D 153,000	0.150	-0.150	D 153,123	0.123	82% -----*
14	Circularity	0.000	t= 0.150		0.065	0.065	44% -*------
Ø 153 und Rundheit auf Höhe 36mm ermittelt							
15	Diameter	D 153,000	0.150	-0.150	D 153,112	0.112	74% -----*
16	Circularity	0.000	t= 0.150		0.060	0.060	40% -*------

Alle Höhen auf Zeichnungsbezug "A"

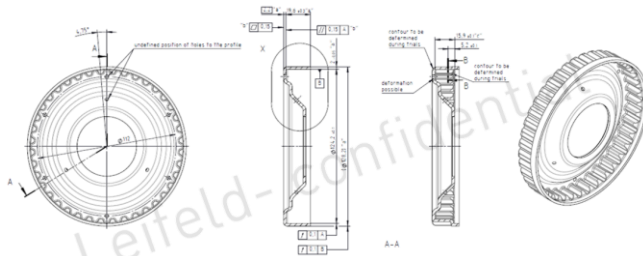


Clutch housing



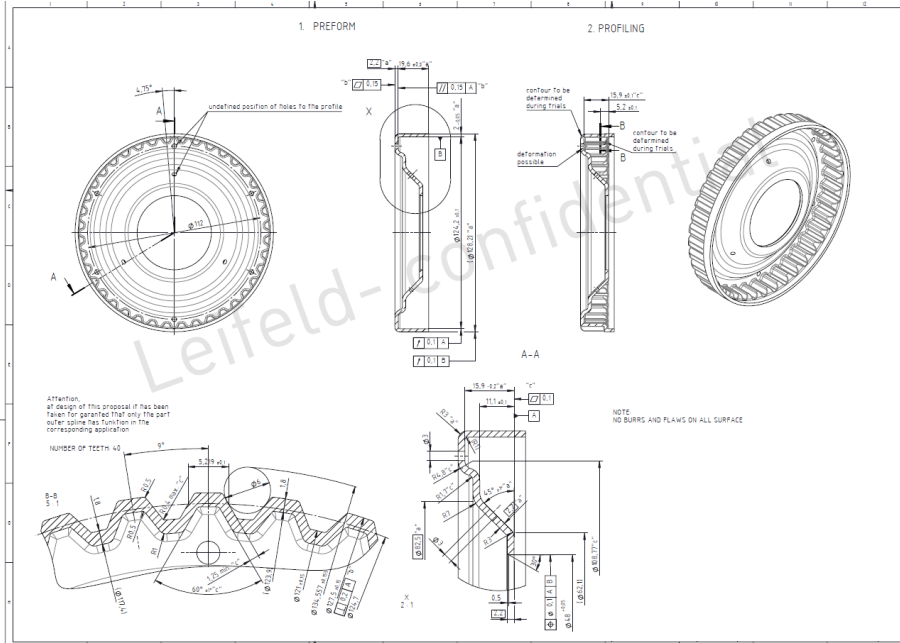
1 PREFORM

2 PROFILING



- Clutch housing with internal and external splines
- The preform is clamped between the top and bottom tools of the machining station. The forming roller (tooth roller) is advanced radially.
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Clutch housing



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Nr.	Merkmal	Nennwert	Tol oben	Tol unten	Istwert	Abweichung	Ausnutzung
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Ø 113,5mm und Rundheit auf Höhe 15mm bezogen auf Ebene unten / innen

1	Diameter	D 113.500	0.150	-0.150	D 113.566	0.056	37% -----*
2	Circularity	0.000	t= 0.150		0.036	0.036	24%*

Ø 113,5mm und Rundheit auf Höhe 24,5mm bezogen auf Ebene unten / innen

3	Diameter	D 113.500	0.150	-0.150	D 113.563	0.063	42% -----*
4	Circularity	0.000	t= 0.150		0.045	0.045	30%*

Ø 113,5mm und Rundheit auf Höhe 34mm bezogen auf Ebene unten / innen

5	Diameter	D 113.500	0.150	-0.150	D 113.579	0.079	53% -----*
6	Circularity	0.000	t= 0.150		0.060	0.060	40%*

Ø 118,6mm und Rundheit auf Höhe 15mm bezogen auf Ebene unten / innen

7	Diameter	D 118.600	0.150	-0.150	D 118.679	0.079	53% -----*
8	Circularity	0.000	t= 0.150		0.029	0.029	19%*

Ø 118,6mm und Rundheit auf Höhe 24,5mm bezogen auf Ebene unten / innen

9	Diameter	D 118.600	0.150	-0.150	D 118.726	0.126	84% -----*
10	Circularity	0.000	t= 0.150		0.038	0.038	26%*

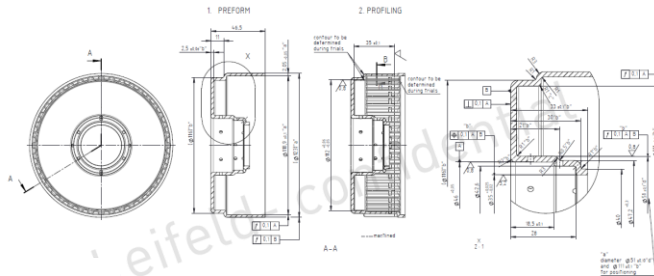
Ø 118,6mm und Rundheit auf Höhe 34mm bezogen auf Ebene unten / innen

11	Diameter	D 118.600	0.150	-0.150	D 118.663	0.063	42% -----*
12	Circularity	0.000	t= 0.150		0.044	0.044	29%*

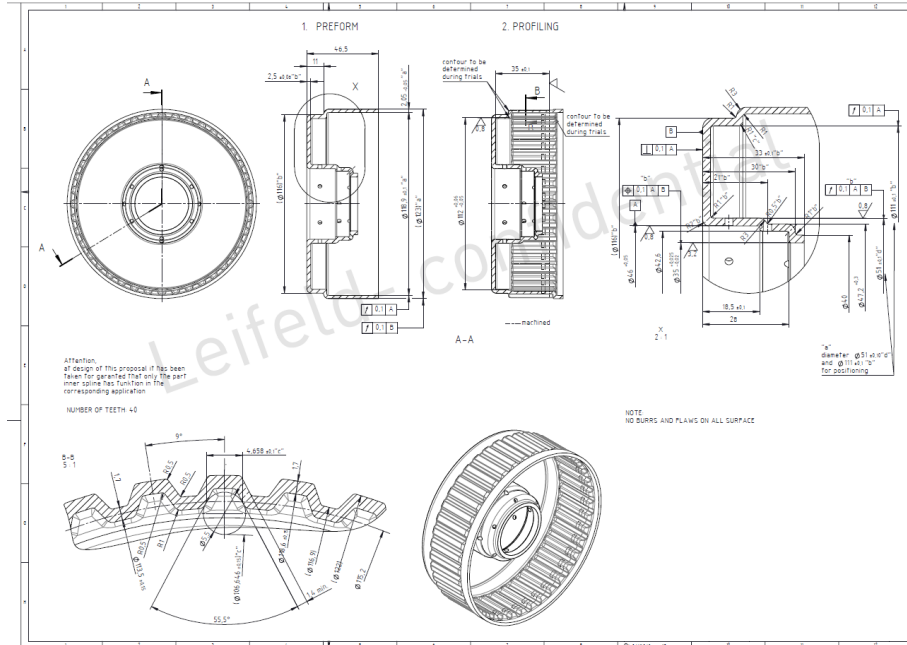
Clutch housing




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Clutch housing



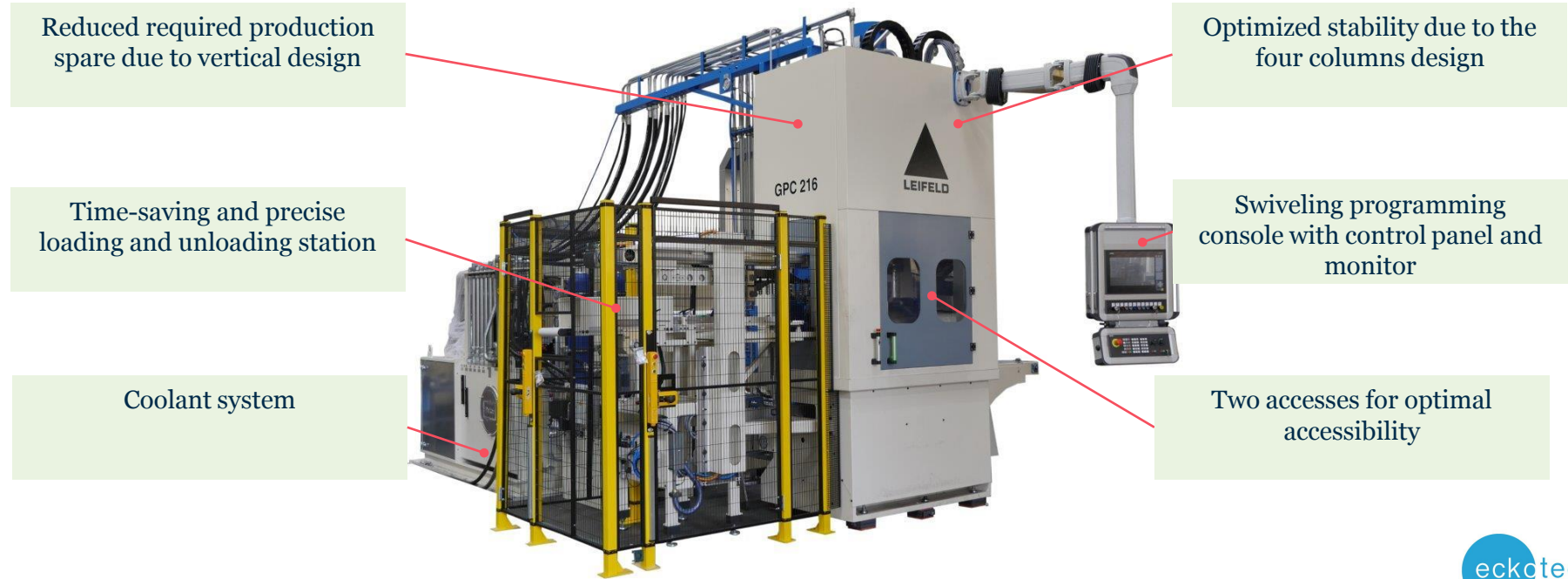
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Nr.	Merkmal	Nennwert	Tol oben	Tol unten	Istwert	Abweichung	Ausnützung
Ø127,5mm 1mm vom oberen Rand							
1	Diameter	D 127.500	0.150	-0.150	D 127.423	-0.077	-51% ----*-----
2	Circularity	0.000			0.034	0.034	
Ø127,5mm Mitte							
3	Diameter	D 127.500	0.150	-0.150	D 127.503	0.003	2% ----*-----
4	Circularity	0.000			0.032	0.032	
Ø127,5mm 1mm vom unteren Rand							
5	Diameter	D 127.500	0.150	-0.150	D 127.515	0.015	10% ----*-----
6	Circularity	0.000			0.030	0.030	
Ø121mm 1mm vom oberen Rand							
7	Diameter	D 121.000	0.150	-0.150	D 121.036	0.036	24% ----*-----
8	Circularity	0.000			0.027	0.027	
Ø121mm Mitte							
9	Diameter	D 121.000	0.150	-0.150	D 120.994	-0.006	-4% ----*-----
10	Circularity	0.000			0.028	0.028	
Ø121mm 1 mm vom unteren Rand							
11	Diameter	D 121.000	0.150	-0.150	D 120.965	-0.045	-30% ----*-----
12	Circularity	0.000			0.029	0.029	

Technical data workpiece

Blank-Ø, min. – max.	120 – 300 mm
Workpiece outside-Ø, min. – max.	100 – 200 mm
Workpiece height max.	100 mm
Length of tooth max.	60 mm
Preform/blank wall thickness, min. – max. (DIN 1614-St W 24 = EN 10111-DD13)	2.5 – 6.0 mm
Preform/blank wall thickness, min. - max DIN 1614-St W 24 = EN 10111-DD13)	2.25 – 4.0 mm

GPC Series for the production of splined gear parts



Reduced required production
spare due to vertical design

Optimized stability due to the
four columns design

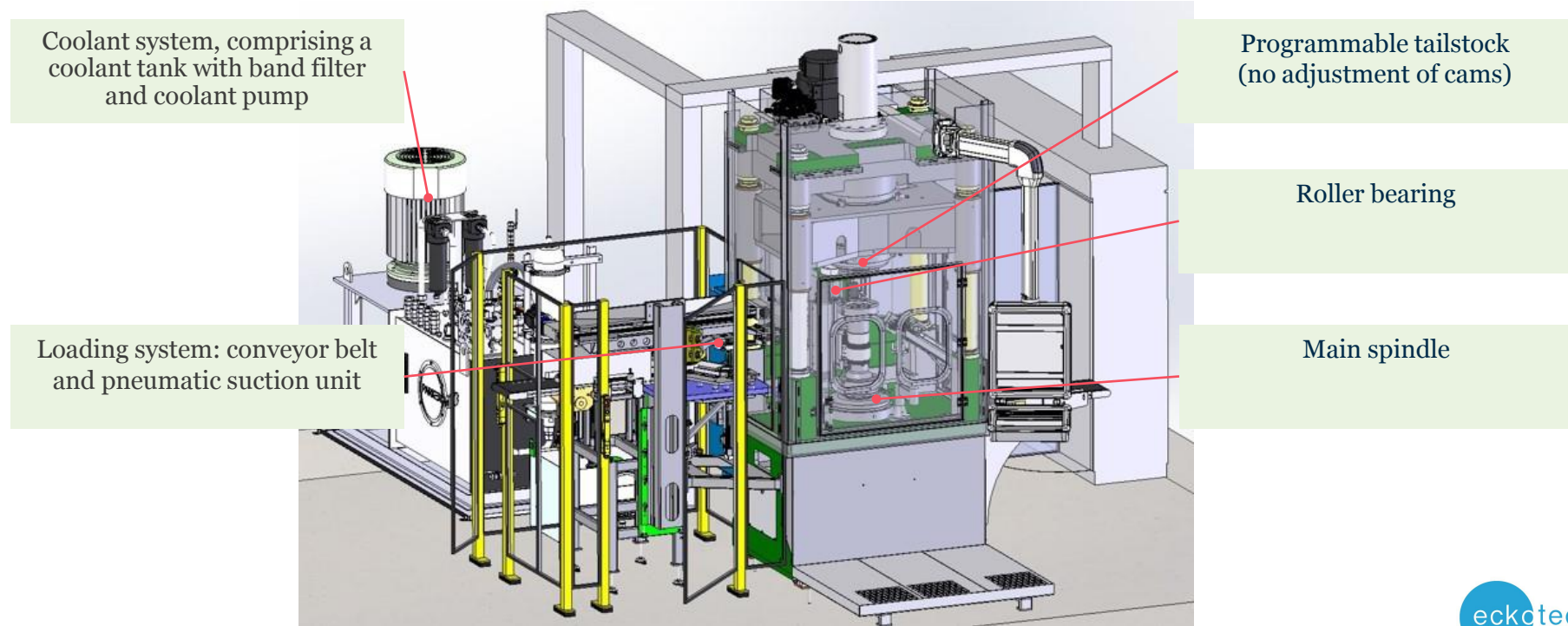
Time-saving and precise
loading and unloading station

Swiveling programming
console with control panel and
monitor

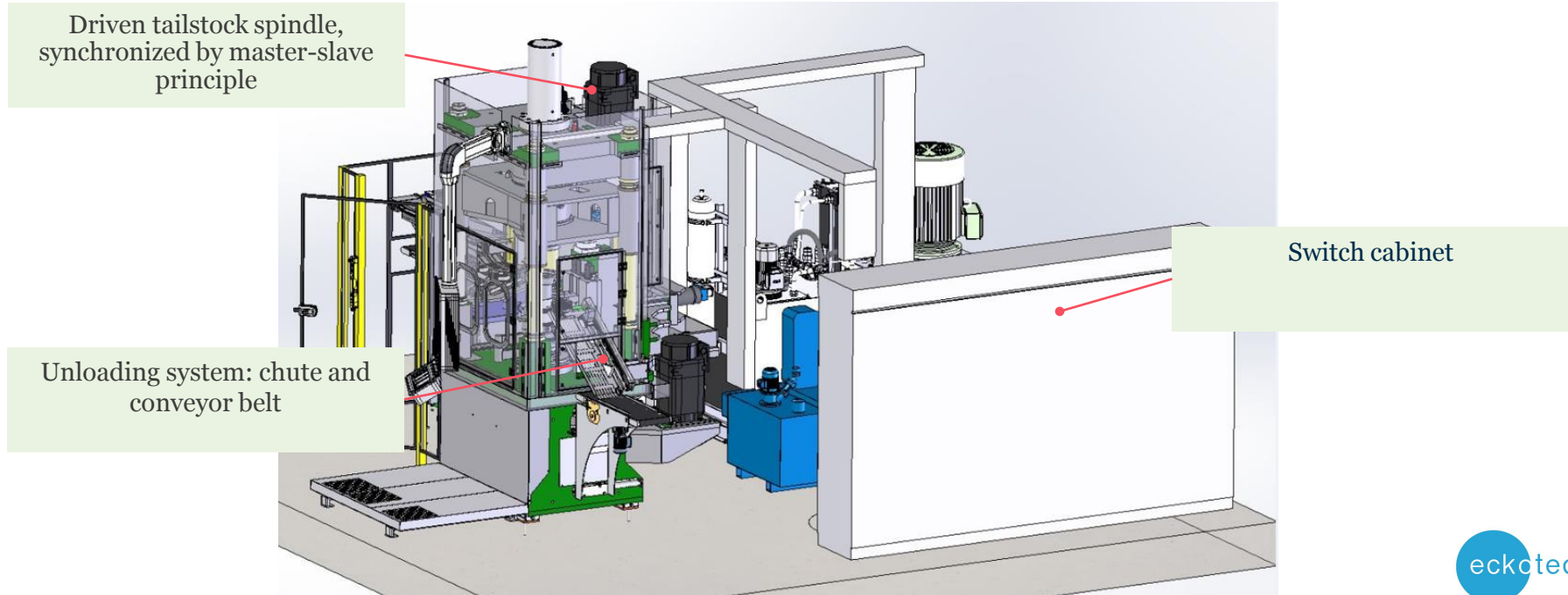
Coolant system

Two accesses for optimal
accessibility

GPC Series for the production of splined gear parts



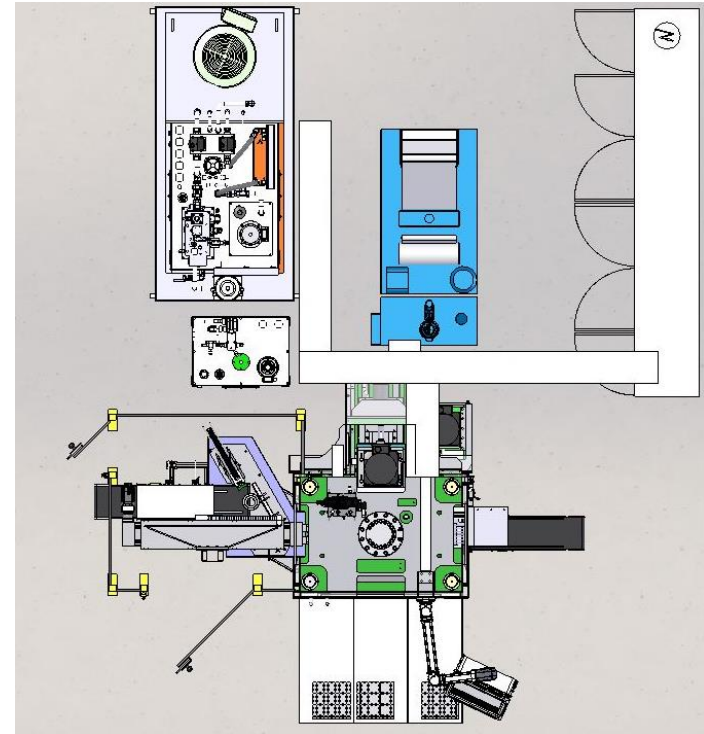
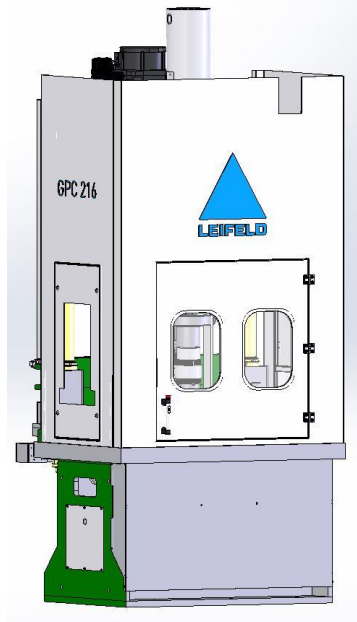
GPC Series for the production of splined gear parts



Layout of GPC 216



Needed space:
5.5m (18ft) * 6.5m (21.3ft)

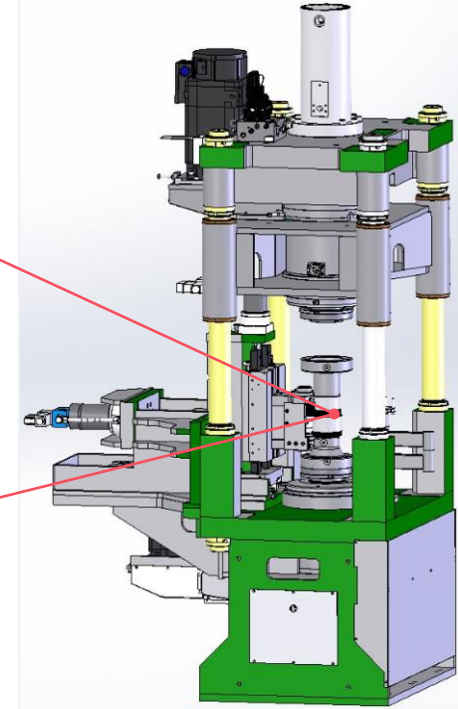
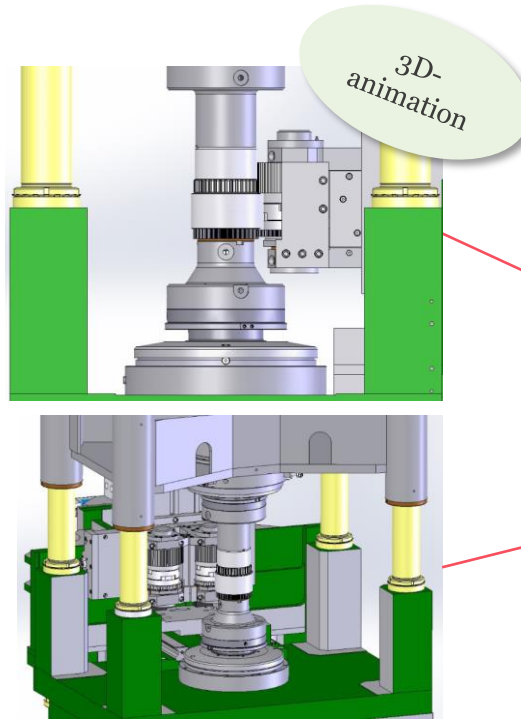


GPC Series for the production of splined gear parts

Profiling in two directions during one clamp is possible

1 roller + 2 independent CNC controlled axes

Synchro unit enables the production of very thin-walled parts with inner and outer toothing



Partial Views of the GPC 216



Workspace

- Large workspace, dimensioned for three rollers and three access points
- Balanced distribution of forces
- Sturdy design



Controller

- Individually programming directly with the machine controller
- Where required, this can also be performed externally
- Flexible operation of production program



Transport of Blanks

- Separation of the circular blanks by conveyor belt in conjunction with a pneumatic suction unit as well as by transferring to the gripper
- Other alternatives are optionally available



Transport of Product

- Rapidly moving to the subsequent processing stage via a chute and conveyor belt
- Other variations are optionally available

Features of the GPC Series



Loading and unloading

- Automatic loading and unloading by robots equipped with single or double grippers
- Reduced loading time



Coolant System

- Coolant system, comprising a coolant tank with band filter and coolant pump
- Automatically switched on and off by the machine operating program



Tool Changing

- Flexible tool changer ensures the shortest possible changing times.
- Suitable for light tools as well as tools weighing up to 1.5 t
- makes it possible to work directly at the machine

Summary



- Long machine life due to extremely stable construction
- Higher precise parts due to higher tailstock force of 600 kN
- Longer tool life due to larger spindle mountings Camlock size 11
- Less maintenance expense due to main spindle bearing lifetime higher than 16,000 hours
- Short cycle time due to loading and unloading system

Summary



- Faster set up due to tailstock positioning by axis
- Driven tailstock spindle, synchronized by master-slave principle and use of high energy efficient 1PH8 motors for main drives from Siemens
- Longer toothed splines due to radial forming with different axial position
- **What can we do for you?**