



| ETH meets SMO

Dirk Boedeker, Siemens Mobility AG (Schweiz)



Siemens AG

Technology to transform the everyday

Providing technology solutions to address the greatest challenges of our time

Healthcare system

Aging society
Personalized healthcare
Affordable healthcare

Population growth
Increase in chronic diseases

Digital transformation of industry, infrastructure and mobility

Competitive industries
Productivity

Efficient infrastructure
Sustainable use of resources

Economic growth
Prosperity

Energy transition

Distributed energy systems / Grid edge
Reliable supply
Energy backbone for society

Increasing demand
Energy efficiency
Hydrogen / sector coupling

Climate change / decarbonization

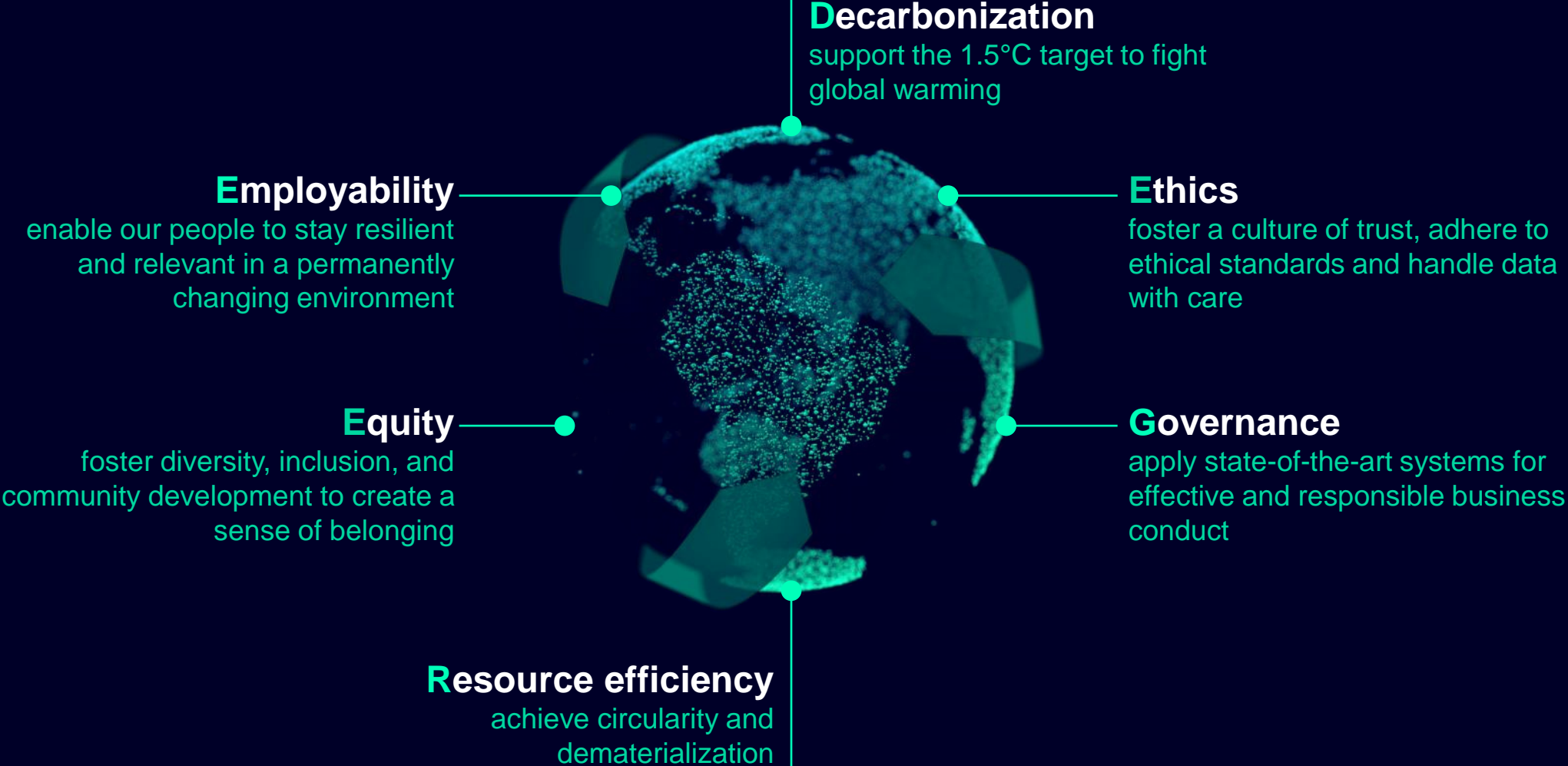
Siemens

Siemens Healthineers¹

Siemens Energy²

¹ Publicly listed subsidiary of Siemens | ² Non-controlled publicly listed associate

Our DEGREE framework sets clear priorities for Sustainability at Siemens





Siemens in Switzerland



Reinforcing Switzerland's attractiveness

#1

largest industrial
employer in
Switzerland

#2

second largest
employer in the
canton of Zug

5295*

employees on more
than 20 sites across
Switzerland

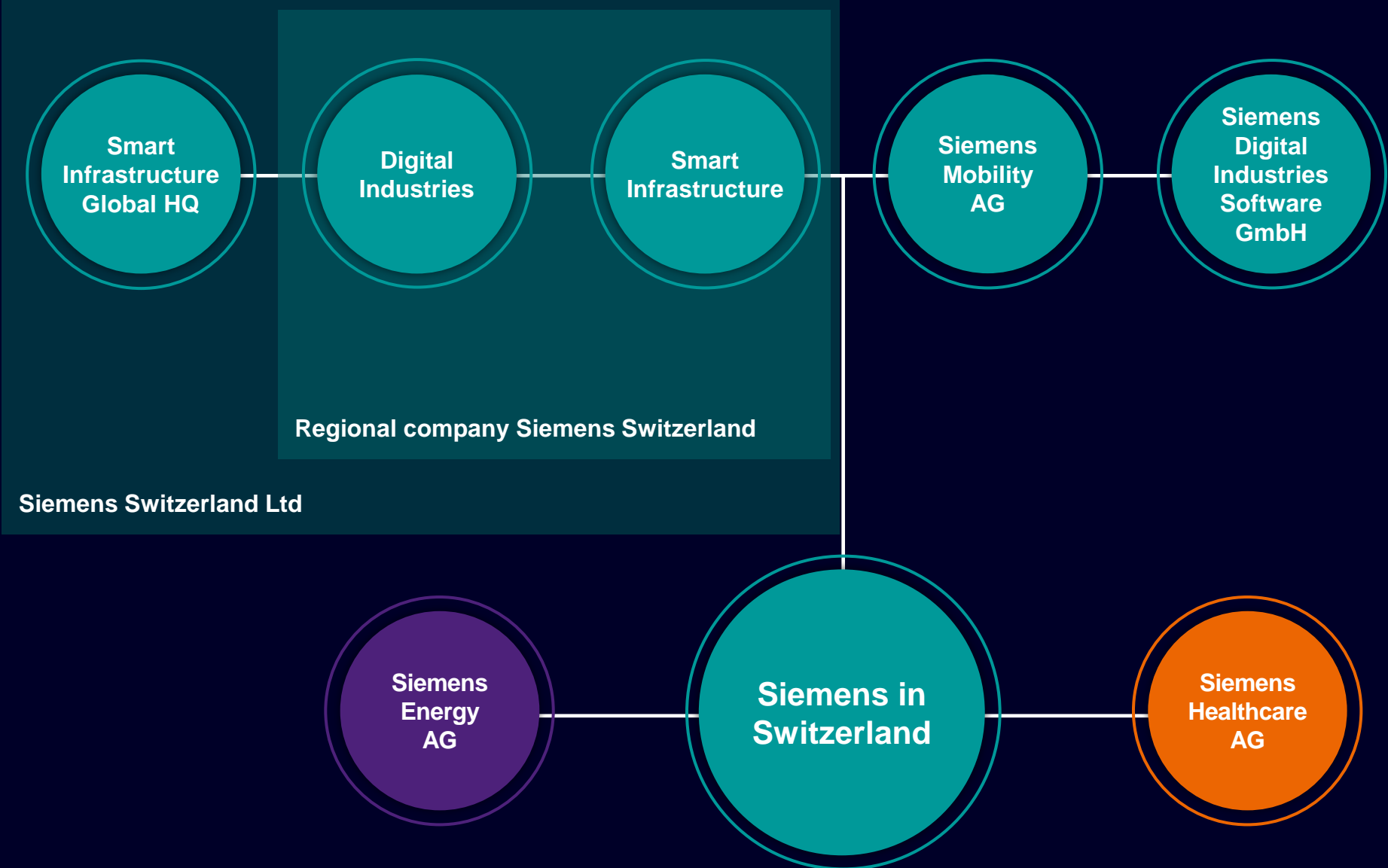
SI HQ Zug

Global HQ of Smart
Infrastructure with
69,600 employees* and
€14 billion turnover*

* on 30 September 2020

SIEMENS

Siemens in Switzerland





Siemens Mobility

Heavy metal moves into the
cloud

Moving beyond.

Moving people and goods sustainably and seamlessly from the first mile to the last



Rail Infrastructure

Products and solutions for Rail Automation and Electrification



Software

Apps and backend systems for passenger information, booking, payment and management of data, infrastructure and fleets



Rolling stock

Short-distance, regional and long-distance rolling stock, product and system solutions for passenger and freight transport



Customer services

Services for Rolling Stock and Rail Infrastructure, throughout the entire lifecycle





Digitalization

What is the challenge* ?

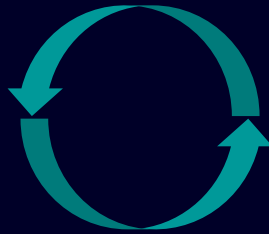
...for us at Siemens Mobility at least

SIEMENS

Aligning the physical and the virtual world

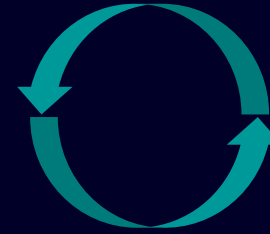
changing very fast

Bandwidth
Connectivity
Storage (costs)
Processing power



starting to change

End user expectations
Customer expectations
Employee expectations
Culture & values



still the same

Hardware (tracks, trains)
Customer processes
Our own processes
Employees

End

digital world

emotional world
(Mindset)

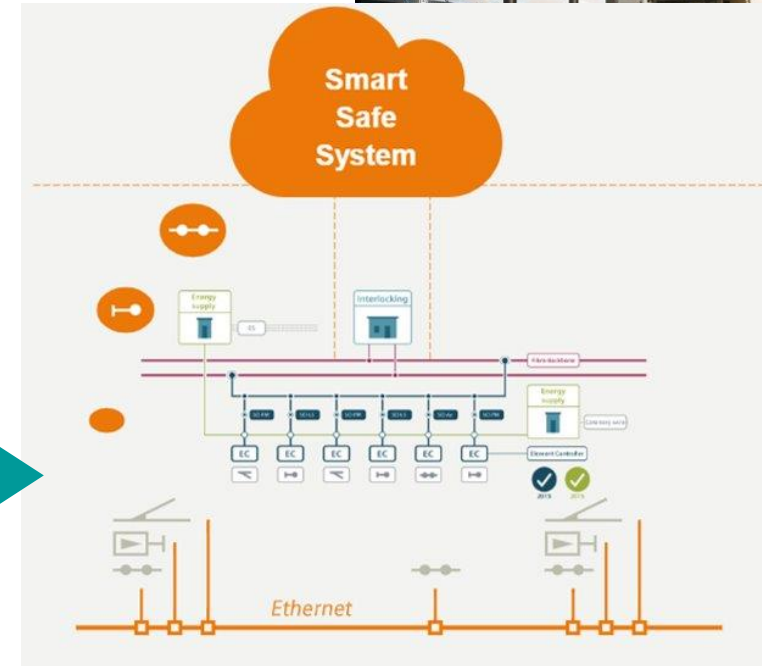
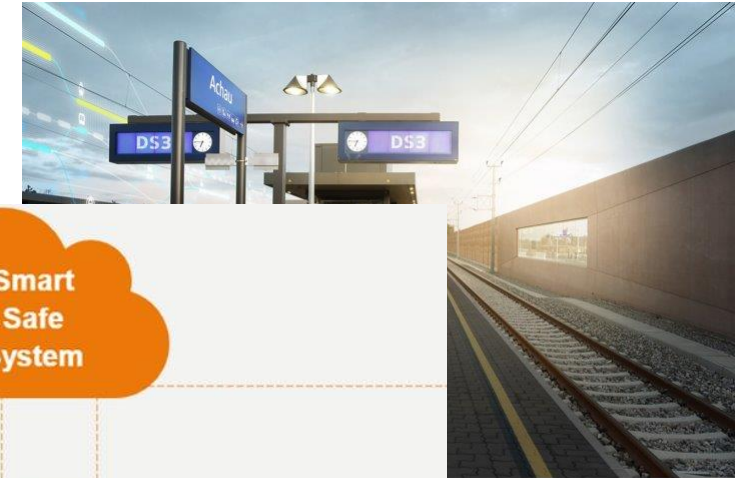
real world

What has changed within Siemens Mobility so far ?

From relais-based Interlockings to «Interlocking-in-the-cloud»



- Proprietary interfaces
- Proprietary hardware
- Analog communication
- On-site operation



- Standardized interfaces
- COTS (commercial of the shelf)
- Digital communication
- Remote operation

From manual measurement to automated measurement



- Manual interaction / man power required
- Partly dirty & risky work
- More measurements leading to higher costs
- Error prone matching wheel - data



- No manual labour required
- Data capturing without exposure to dirt / risks of injury
- Measurement can be done at every pass
- 100% match wheel - data

From manual check to automated check



- Manual interaction with two head count on site («Zwei-Augen-Prinzip»)
- Paper: might get wet, damaged or lost
- Effort to transfer paper to data base
- Error prone: on site due to weather, darkness; in office when transferring the data



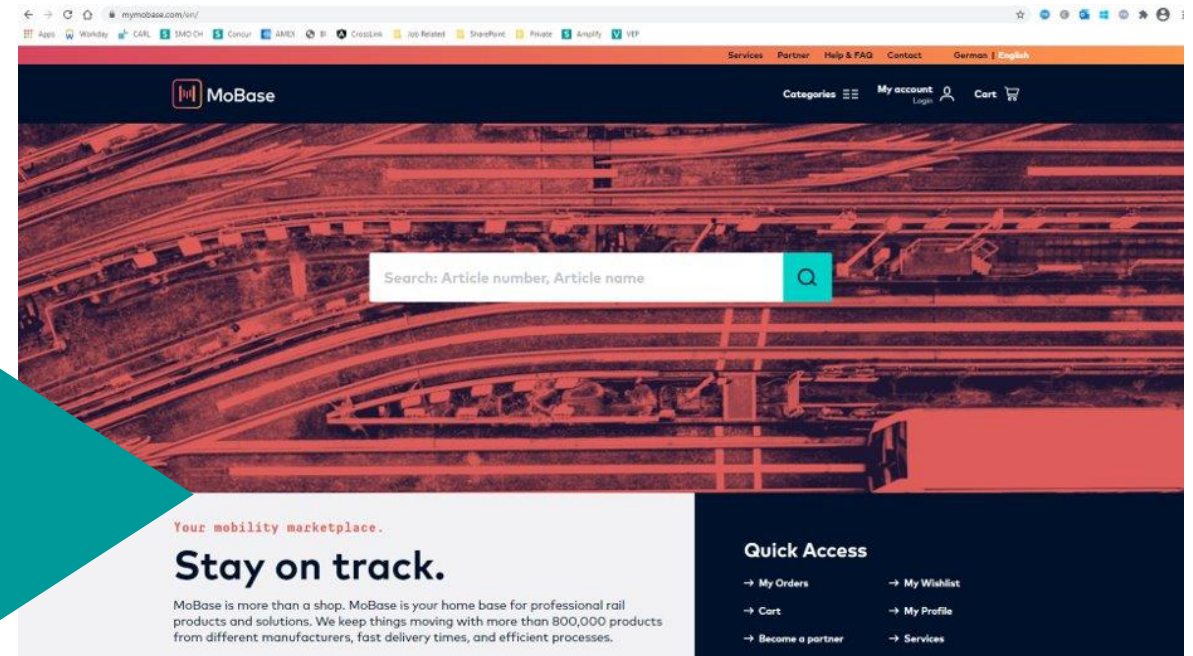
- Automated check-sum comparison
- Only one person on site required
- Data is automatically forwarded into data base
- «Error free» due to minimized manual work

From price-lists to online-shopping

Preisliste 2021 / 766610 (in CHF)

Mat-Nr.	Material oder Vertrag	Materialbezeichnung	Produktgruppe	Hinweise	Preis ab ME (in CHF)										
					1	2	5	10	20	50	100	200	500	1000	
AFA 2- 1	272-10-0000	Instrumentenceil R 34 K	3 - Relaisstellwerke		130.00	130.00	130.00	128.10	121.10	119.90	118.70	118.70	118.70	118.70	
AKK 2- 3	offen	KLEBSTOFF "3M-EC 1090"	nicht bekannt		22.00	21.40	20.50	20.30	20.30	20.30	20.30	20.30	20.30	20.30	
AKR 33- 80	272-10-4010	RUND-MOOSGUMMI EPDM	7 - Signale		-	-	-	-	-	-	1.05	1.05	1.05	1.05	
AKR 33- 81	offen	RUND-MOOSGUMMI EPDM, L = 1170 mm	nicht bekannt		2.90	2.90	2.90	2.90	2.80	2.70	2.60	2.60	2.60	2.60	
AKR 33- 90	offen	RUND-MOOSGUMMI EPDM	nicht bekannt		-	-	-	-	-	-	2.25	2.25	2.25	2.25	
AM 4- 2	210-01-801	SCHILDEHAUSE	7 - Signale		90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	
CES 1014- 2	offen	LAENGSKANAL EINSTELLBAR	0 - Weichen	auf Anfrage											
CES 1307- 11	offen	LAGERUNG MIT WINKELHEBELKASTEN	0 - Weichen	auf Anfrage											
CES 1309- 11	offen	LAGERUNG MIT WINKELHEBELKASTEN	0 - Weichen	auf Anfrage											
CES 1414- 3	offen	DECKHAUBE MIT TRAVERSE	0 - Weichen	auf Anfrage											
CES 1414-103	251-33-0011	DECKHAUBE	0 - Weichen		175.00	175.00	169.80	163.00	161.40	161.40	161.40	161.40	161.40	161.40	
CES 1415- 11	offen	KASTEN	0 - Weichen		862.00	862.00	862.00	862.00	862.00	862.00	862.00	862.00	862.00	862.00	
CES 1415- 12	offen	KASTEN	0 - Weichen		982.00	982.00	982.00	982.00	982.00	982.00	982.00	982.00	982.00	982.00	
CES 1416- 11	offen	ANSCHLUSSKANAL	0 - Weichen		830.00	830.00	830.00	830.00	830.00	830.00	830.00	830.00	830.00	830.00	
CES 1416- 12	272-10-0075	ANSCHLUSSKANAL	0 - Weichen		794.00	794.00	794.00	794.00	794.00	794.00	794.00	794.00	794.00	794.00	
CES 1416- 13	234-64-1001	ANSCHLUSSKANAL	0 - Weichen		1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	
CES 1417- 1	212-62-51	WINKELHEBEL MIT LAGERBOCK	0 - Weichen		1390.00	1390.00	1348.00	1294.00	1281.00	1281.00	1281.00	1281.00	1281.00	1281.00	
CES 1417- 3	212-62-53	WINKELHEBEL MIT LAGERBOCK	0 - Weichen		1390.00	1390.00	1390.00	1390.00	1390.00	1390.00	1390.00	1390.00	1390.00	1390.00	
CES 1423- 1	295-13-0097	LAENGSKANAL F. KASTENANSCHLUSS	0 - Weichen		653.00	653.00	653.00	633.40	606.10	602.00	596.00				
CES 1423- 2	234-64-1007	LAENGSKANAL M. AUSRLSTUNG	0 - Weichen		1795.00	1795.00	1795.00	1795.00	1795.00	1795.00	1795.00	1795.00	1795.00	1795.00	
CES 1508- 4	offen	SEITENWAND-ELEMENT	0 - Weichen		72.35	72.35	72.35	72.35	72.35	72.35	72.35	72.35	72.35	72.35	
CES 1509- 1	240-00-0001	SEITENWAND	0 - Weichen		72.65	72.65	72.65	72.65	72.65	72.65	72.65	72.65	72.65	72.65	
CES 1513- 8	offen	ABDECKBLECH	0 - Weichen		34.15	34.15	34.15	34.15	34.15	34.15	34.15	34.15	34.15	34.15	
CES 1513- 7	264-01-1	LAGEREISEN	0 - Weichen		235.00	235.00	235.00	235.00	235.00	235.00	235.00	235.00	235.00	235.00	
CES 1513- 9	220-74-0011	LAGEREISEN	0 - Weichen		299.50	299.50	299.50	299.50	299.50	299.50	299.50	299.50	299.50	299.50	
CES 1513- 14	272-10-0078	LAGEREISEN	0 - Weichen		214.00	214.00	214.00	214.00	214.00	214.00	214.00	214.00	214.00	214.00	
CES 1513- 25	offen	LAGEREISEN	0 - Weichen		930.00	930.00	930.00	930.00	930.00	930.00	930.00	930.00	930.00	930.00	
CES 1518- 1	253-30-3119	ABDECKBLECH	0 - Weichen		70.40	70.40	70.40	70.40	70.40	70.40	70.40	70.40	70.40	70.40	
CES 1525-102	272-10-0080	LAGERBUEGEL	0 - Weichen		780.00	780.00	780.00	780.00	780.00	780.00	780.00	780.00	780.00	780.00	
CES 1525-103	295-13-0098	LAGERBUEGEL	0 - Weichen		892.00	892.00	892.00	892.00	892.00	892.00	892.00	892.00	892.00	892.00	
CES 1525-104	offen	LAGERBUEGEL	0 - Weichen		798.00	798.00	798.00	798.00	798.00	798.00	798.00	798.00	798.00	798.00	
CES 1549- 1	offen	ABDECKUNG ISOLIERT	0 - Weichen		336.00	336.00	336.00	325.90	312.90	309.80	306.70				
CES 1553- 1	234-64-1005	TRAVERSE	0 - Weichen		66.05	66.05	66.05	64.05	61.50	60.90	60.30				
CES 1557- 1	offen	ISOLIERPLATTE	0 - Weichen		25.00	25.00	25.00	25.00	25.00	25.00	25.00				
CES 1557- 3	offen	ISOLIERPLATTE	0 - Weichen		13.20	13.20	13.20	13.20	13.20	13.20	13.20				
CES 1558- 1	offen	UNTERLAGE	0 - Weichen		32.40	32.40	32.40	32.40	32.40	32.40	32.40				
CES 1573- 1	234-64-1004	SCHRAUBENSICHERUNG	0 - Weichen		28.00	28.00	28.00	28.00	28.00	28.00	28.00				
CES 1574- 1	offen	ABDECKUNG	0 - Weichen		82.00	82.00	78.55	76.35	75.60	75.60	75.60				
CES 1574- 2	221-121-10	ABDECKUNG	0 - Weichen		82.00	82.00	78.55	76.35	75.60	75.60	75.60				
CEZ 11- 14	0ES7 414-SHM06	VERBINDUNGSSTANGE	0 - Weichen	auf Anfrage											
CEZ 19-257	offen	ANTRIEBSTANGE	0 - Weichen		1340.00	1340.00	1340.00	1340.00	1340.00	1340.00	1340.00	1340.00	1340.00	1340.00	
CEZ 19-264	offen	ANTRIEBSTANGE	0 - Weichen		1530.00	1530.00	1530.00	1530.00	1530.00	1530.00	1530.00	1530.00	1530.00	1530.00	
CEZ 203- 1	253-70-7012	ANSCHLUSSSAUGE M. BUECHSEN D 20	0 - Weichen		427.00	427.00	427.00	427.00	427.00	427.00	427.00	427.00	427.00	427.00	
CEZ 203- 2	253-70-7013	ANSCHLUSSSAUGE M. BUECHSEN D 20	0 - Weichen		430.00	430.00	430.00	430.00	430.00	430.00	430.00	430.00	430.00	430.00	
CEZ 204- 15	233-80-5125	GESTAENGEROHR MIT REG.-MUFFEN	0 - Weichen		1096.00	1096.00	1096.00	1096.00	1096.00	1096.00	1096.00	1096.00	1096.00	1096.00	
CEZ 207- 9	offen	LAENGSGESTAENGE REGULIERBAR	0 - Weichen	auf Anfrage											
CEZ 210- 4	272-31-0301	LAENGSGESTAENGE MIKANAL EINSIT.	0 - Weichen	auf Anfrage											
CEZ 305- 3	offen	KREUZGELENK	0 - Weichen		320.00	320.00	320.00	320.00	320.00	320.00	320.00	320.00	320.00	320.00	
CEZ 305- 6	offen	KREUZGELENK	0 - Weichen	auf Anfrage											

- .pdf format
- updated once a year
- labour intensive
- no information about product



- online Web-shop
- linked to ERP (SAP)
- automatic updates
- further information, e.g. data sheets

From ticket counters to «swipe-in» and «be-in»



- labour intensive
- long waiting time
- «pre-paid», i.e. destination must be known
- not Covid-19 safe



- automated (be-in) or assisted (swipe-in)
- no waiting time
- best price «post-paid»
- Covid-19 safe

| Contact

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