

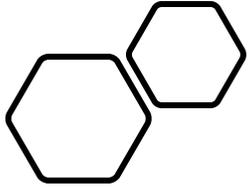


Retrofit of the existing
power supply – achieving
energy savings through
electrification

iguts®



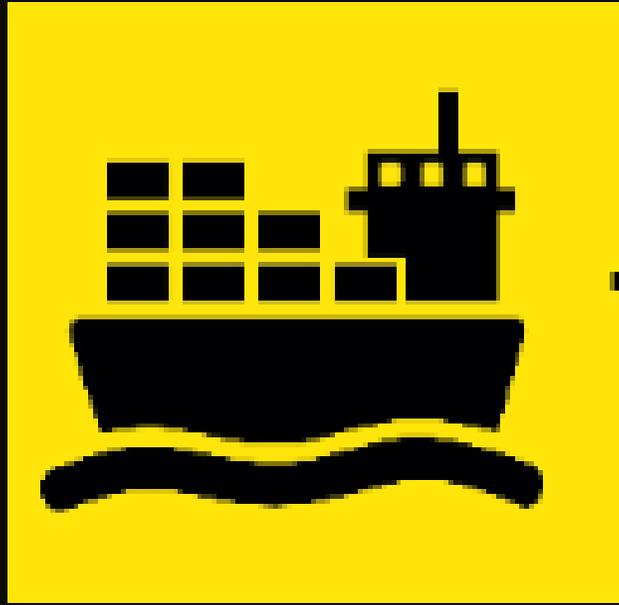
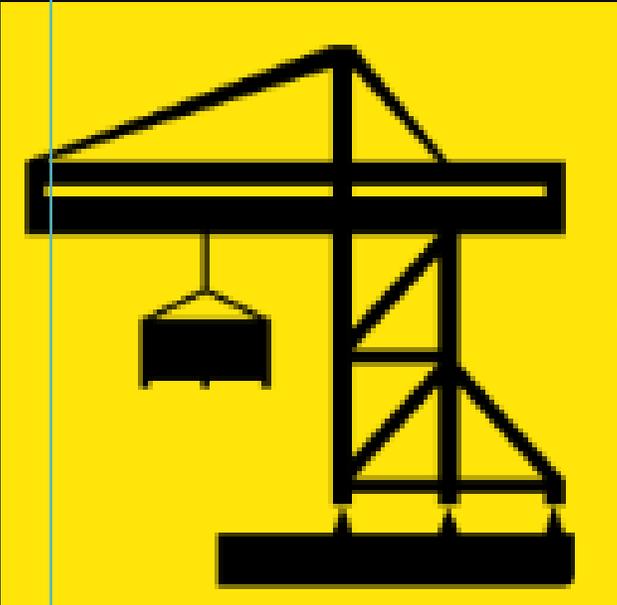
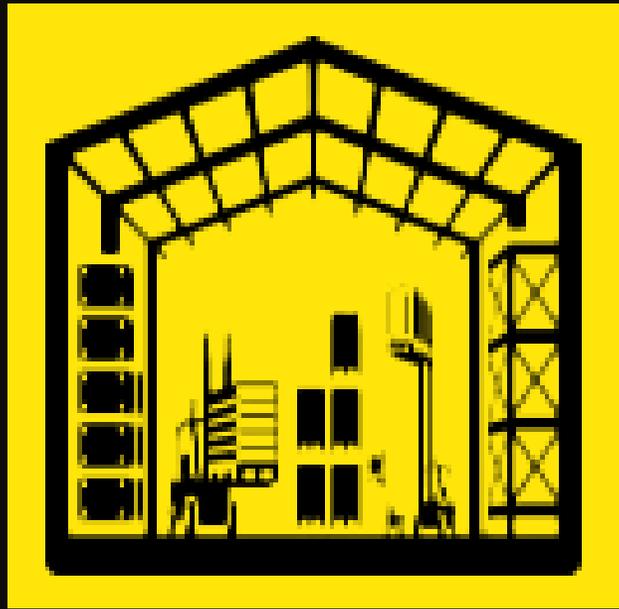
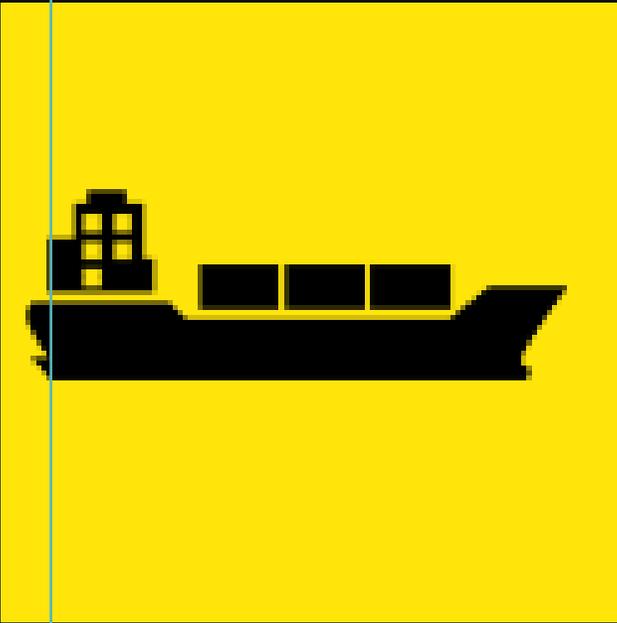
- Common power supply
- Dynamic machines
- Cable length savings
- Weight reduction on the machine
- Less stress on cables
- Cross section reduction
- Global energy price
- Energy savings
- Maintenance cost savings
- Examples and references



Retrofit of the existing power supply – achieving energy savings through electrification

- festoon
- busbar
- cable drum
- wireless
- drag cables
- energy chain



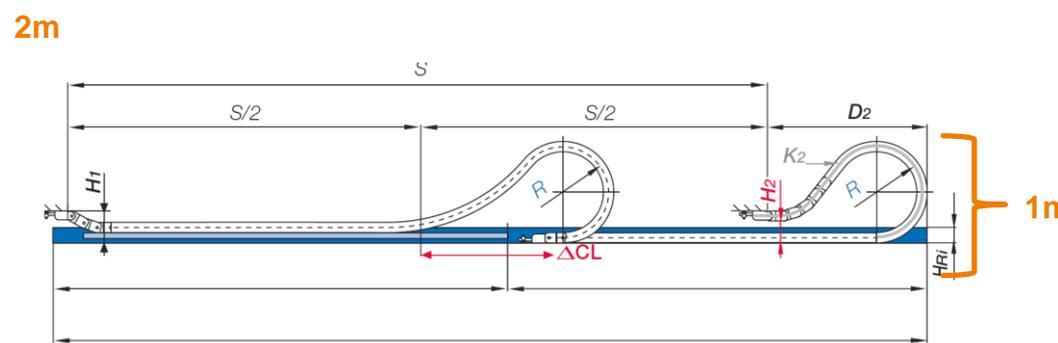
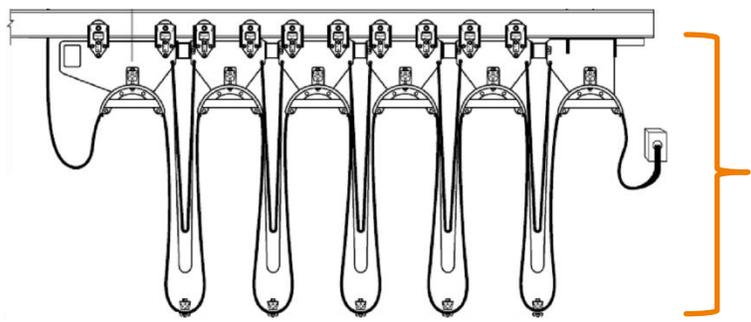
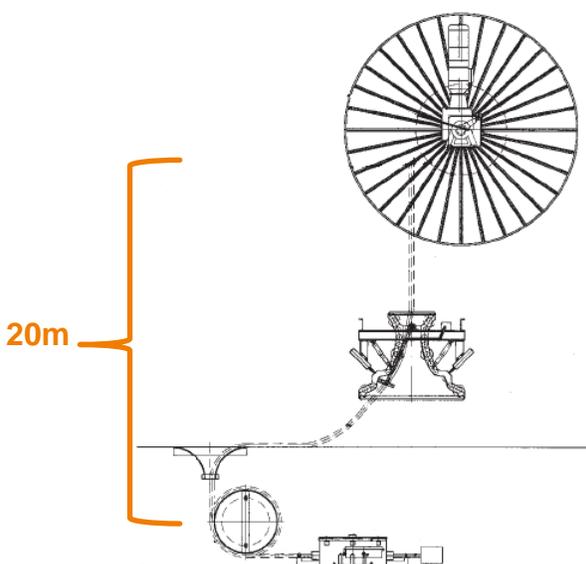


Retrofit of the existing power supply – achieving energy savings through electrification

- Ship loader
- Ship unloader
- Ship to shore
- Stacker
- Reclaimer
- Bucket wheel reclaimer
- Tripper car
- Silo
- Bunker
- Hopper
- Paddle feeder
- Tippler
- Side Arm Charger
- And many more...



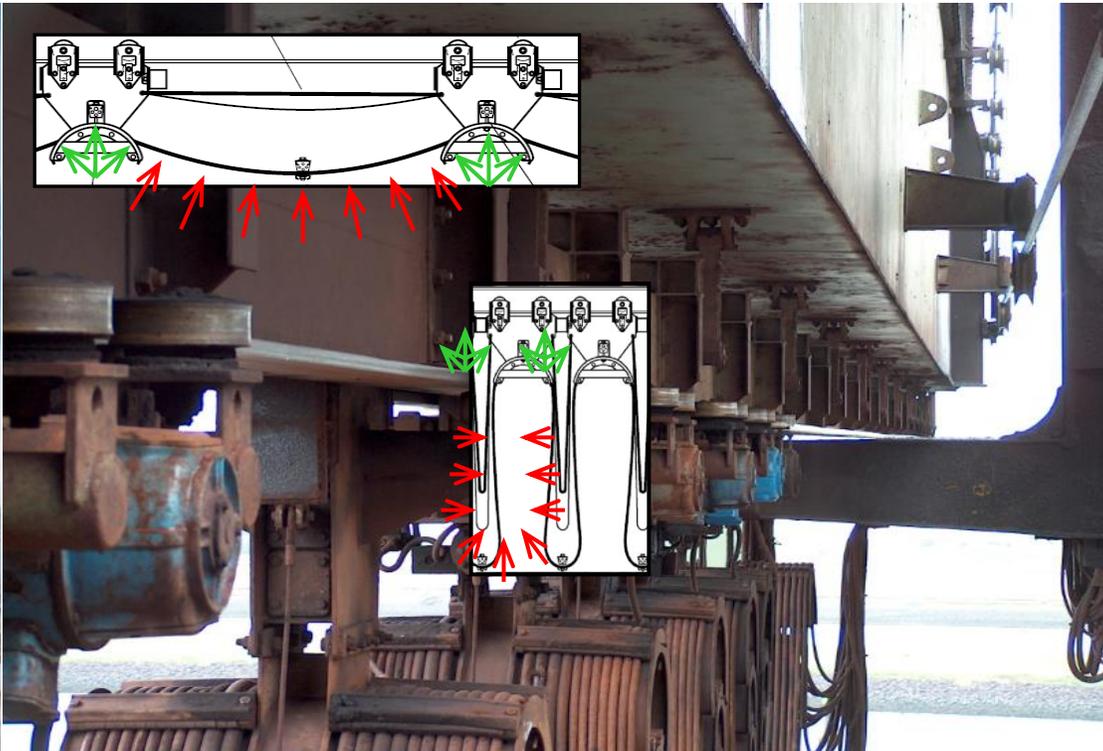
	cable reeling drum	festoon	energy chain
height	20m	2m	1m
feed	center	end	center
cable length	50m	100m	50m
total cable length	70m	117m	51m
normal speed	2m/s	3m/s	4m/s
max. speed	5m/s	5m/s	10m/s
add ons	frequency drive	electrical trolleys	self-driven rollers



savings up to 50% of the moving cable length

special cables under constant push- and pull force
 cable under tension
 tension load un- and coiling with corkscrew result
 no predefined bending radius
 jerky movements of the crane, trolley & by wind

	cable reeling drum	festoon	energy chain
special cables under constant push- and pull force	1	0	0
cable under tension	1	1	0
tension load un- and coiling with corkscrew result	1	0	0
no predefined bending radius	0	1	0
jerky movements of the crane, trolley & by wind	1	1	0



savings through reduces stress of cables considerably



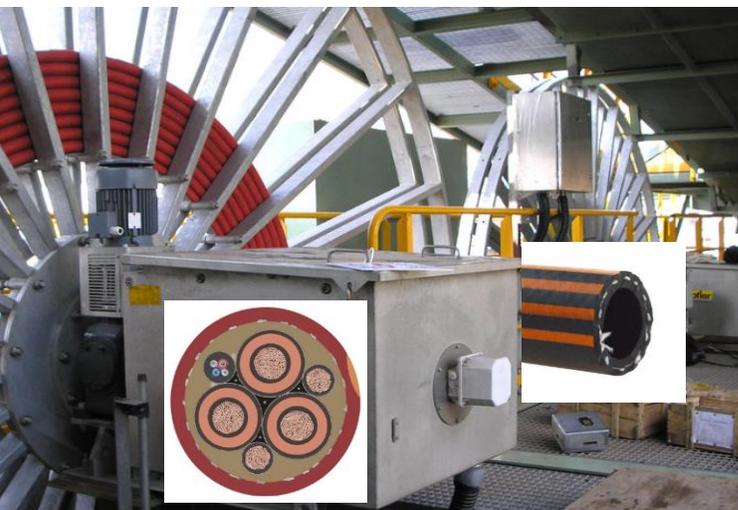
	cable reeling drum	festoon	energy chain
extra weight cables	4000kg	4000kg	0
extra weight power supply	1500kg	I beam + trollies	0
parking station	0	plus 10%	0
extra beam length	0	plus 10%	0



savings without additional structure on crane is getting more compact and lighter



	cable reeling drum	festoon	energy chain
special cables	1	1	0
cable delivery time weeks	~16	5	ex stock
higher cost	1	0	0
slip ring unit + rotary transmitter	1	0	0
rotary transmission power, fiber optic cables, water	1	0	0
copper cables	0	1	0
media hose with high mechanical stability	0	1	0
properties	0	1	0
different media in 1 system	0	1	0
no mechanical bending radi	0	1	0



savings with big cable range - power & data transmission from one source, ex stock



de-rating factor

long travel low speed

long travel susceptible to interface

cable reeling drum

festoon

energy chain

1

0

0

0

1

0

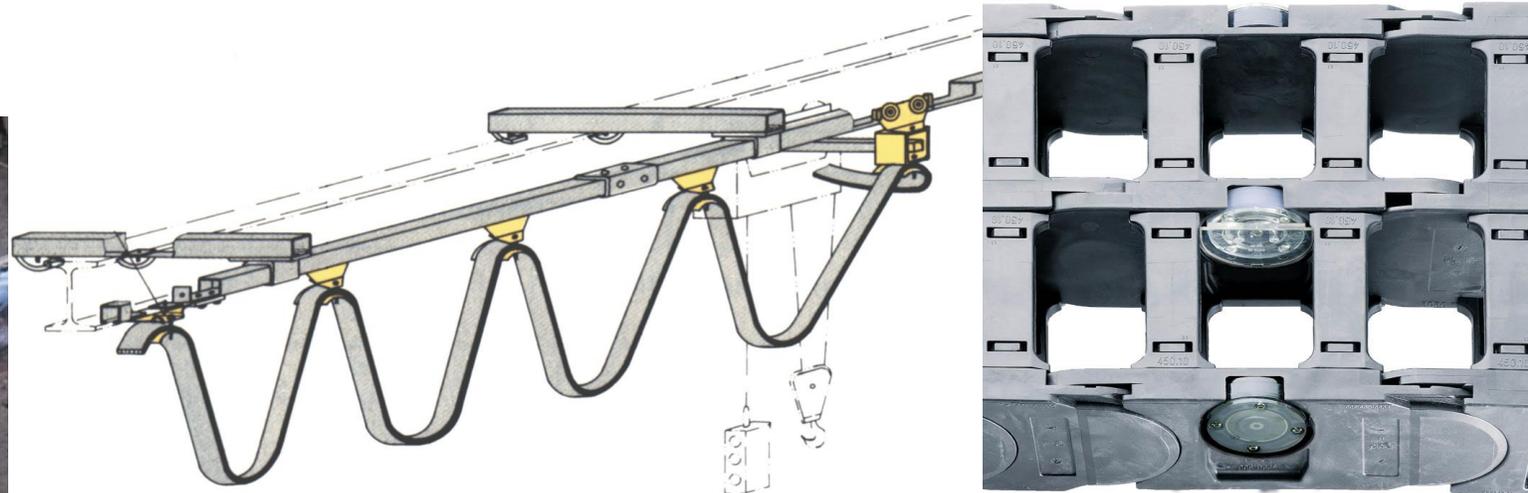
0

1

0

STANDARD	NUMBER OF LAYERS					
	1	2	3	4	5	6
OMSHR / NIOSH	0,67	0,49	0,39	0,31	0,26	0,23
DIN/VDE	0,80	0,61	0,49	0,42	0,38	-
ICEA/NEMA	0,85	0,65	0,45	0,35	-	-

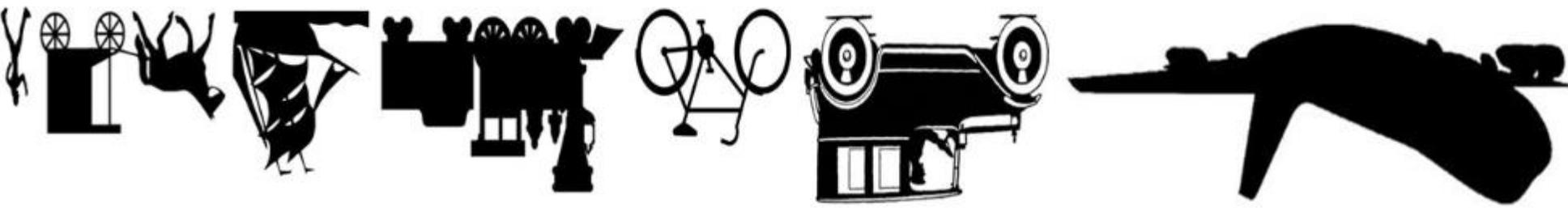
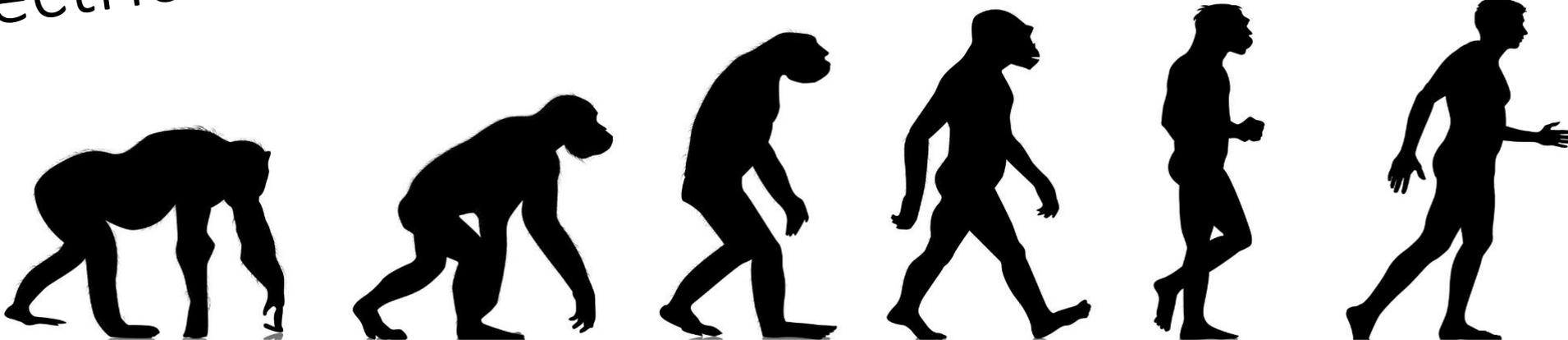
Table 1. Ampacity derating factors for round cables coiled on cylindrical drums.



savings through smaler cross section



..electrical engergy growth follows productivity



Lights out, ovens off: Europe preps for winter energy crisis

By DAVID McHUGH, JUSTIN SPIKE, KAREL JANICEK and VESELIN

European Markets

EU plans to cap price as Putin w...

winter freeze

Reuters



'UK hardest hit by electricity prices in Europe'

UK electricity prices rose by 129% last year, according to a new report

Big Zero Report 2022

THE BIG ZERO REPORT 2022

NET ZERO 101

Everything you need to know about net zero in a simple way



Source: HEPI by Energie-Control Austria, MEKH and VaasaETT Ltd. © 2022 VaasaETT Ltd.

Legend: End-user electricity price (August 2022), Average - EU27, Av:

Stadtwerke erwarten Strompreisanstieg von bis zu 60 Prozent

FÜR KOMMENDES JAHR

AKTUALISIERT AM 16.09.2022 - 09:23

Energy war erupts as Putin and clash over oil and gas

There's a growing effort by the EU and the G7 to stop Russia from earning huge gas. Moscow retaliates by shutting Nord Stream pipeline.





	cable reeling drum	festoon	energy chain
	4,5kW x DE	2,2 -5,5kW DE	1,17kW x DE
	0,51€/kWh x	0,51€/kWh x	0,51€/kWh x
	8.000h/yr	8.000h/yr	8.000h/yr
	18.496,80 €	9.042,88 €	4.836,76 €
AC- Motor units quantity	1 - 3	3	1

€ = kW x kWh x h/yr



savings less drives and motors

maintenance effort

	cable reeling drum	festoon	energy chain
slipe ring	1	0	0
special cables	1	1	0
corkscrew	1	0	0
overheating, cable could trigger fire in coal stock yard	1	0	0
safety	1	1	0
cable trollies	0	1	0
bearings	0	1	0
lubrification	1	1	0
electrification gear	0	1	0



savings trough less Maintenance time & increases crane availability

capex system price
opex over lifetime

cable reeling drum

festoon

energy chain

0

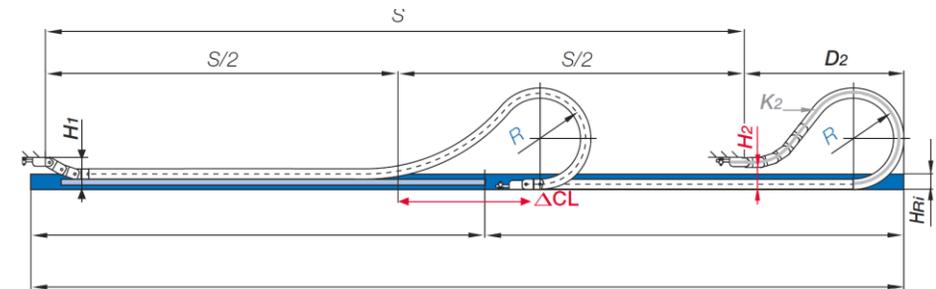
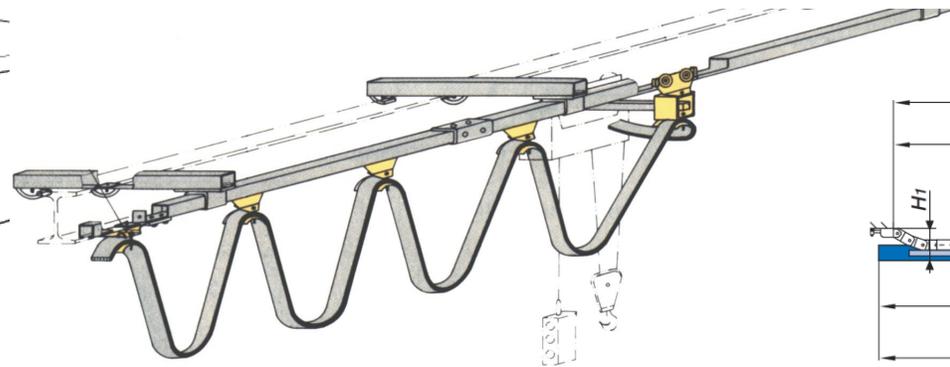
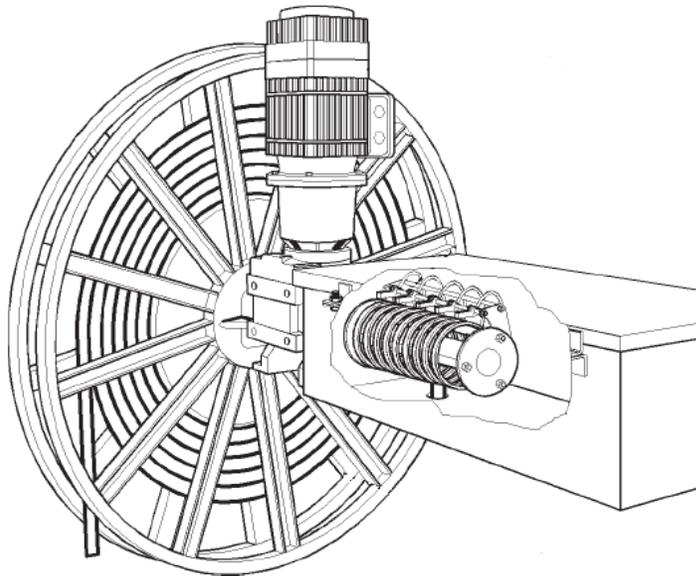
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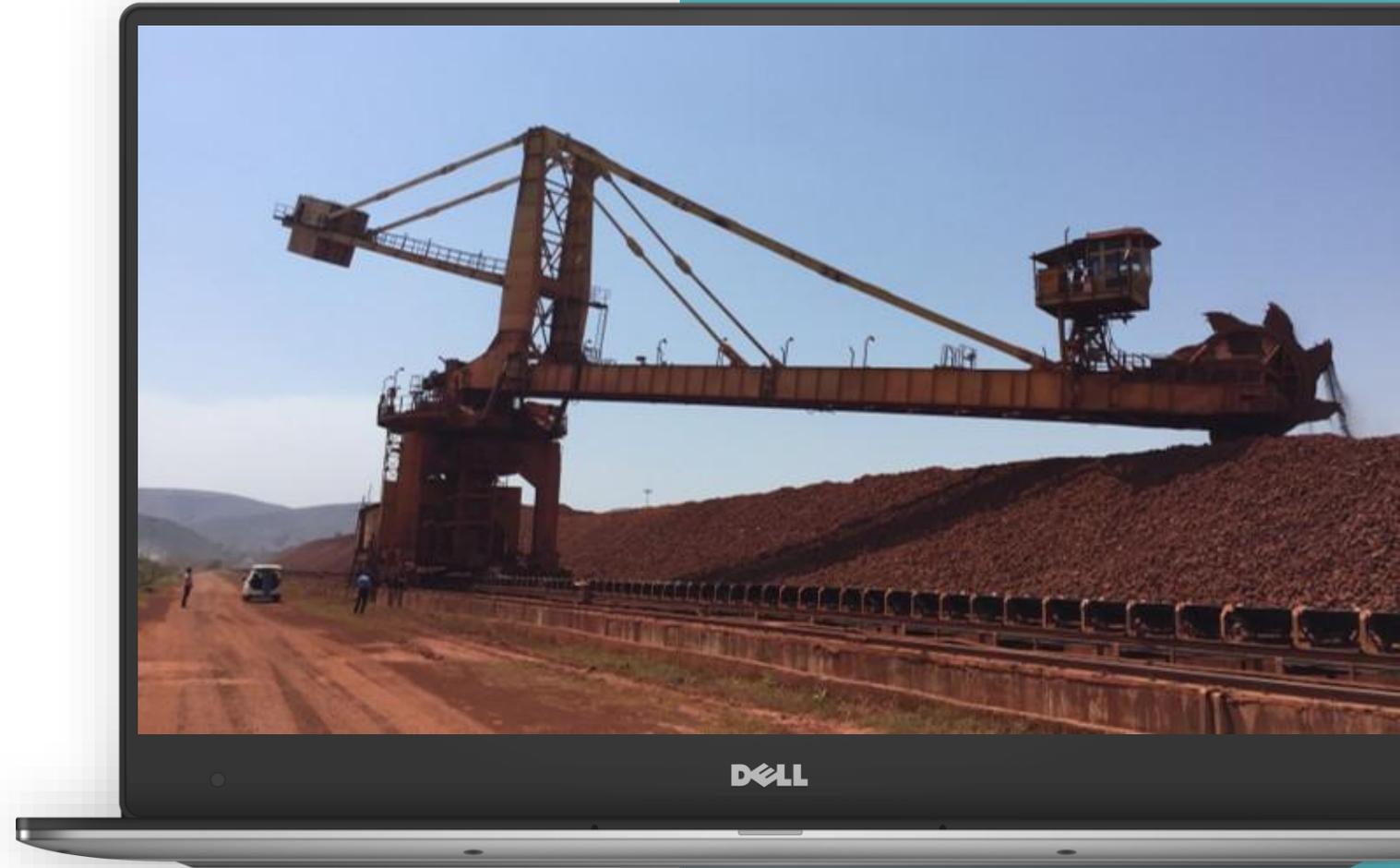
1

1

0



955m India, Utkal since 2022



2x 670 m
India, Talwandi
since 2020

Thermal Power Plant
Bucket Wheel Reclaimer
2x 670m + 3x 230m





615m since 2007

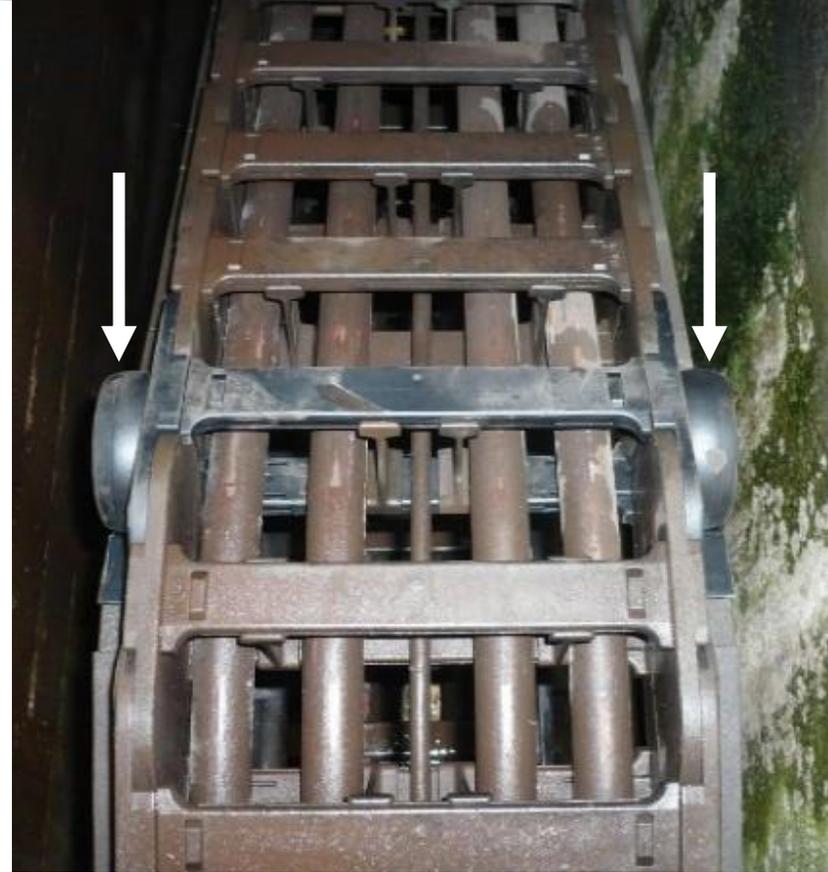
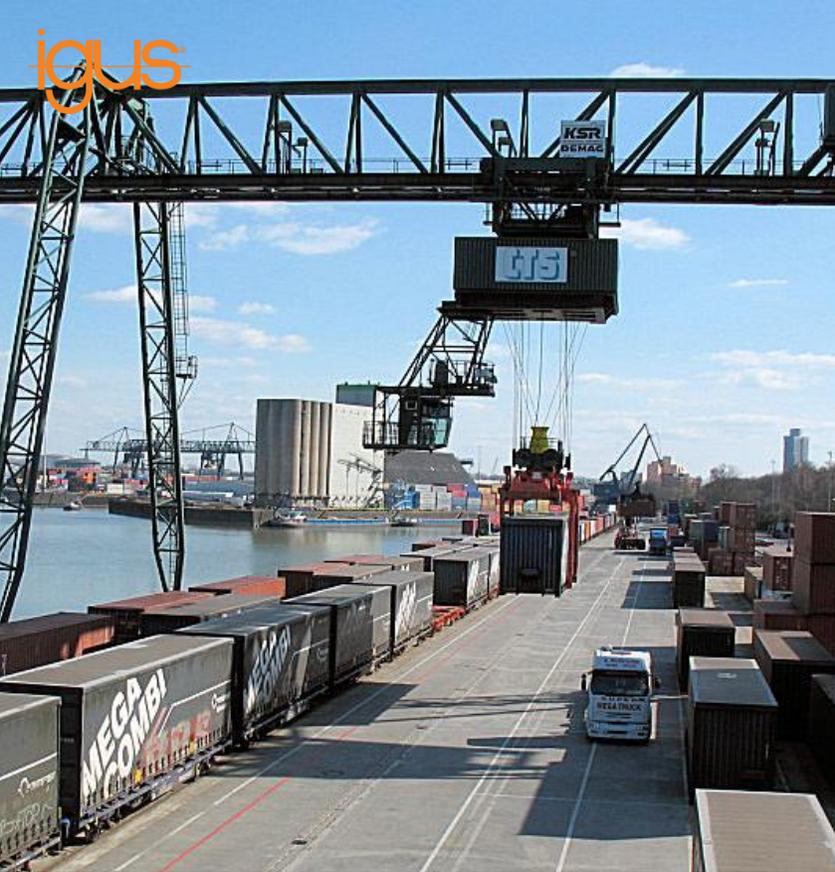


2019 Philippinen, Stacker & Reclaimer

Cable reeling drum retrofit

178m





1998 Container Crane Cologne 131 m

1998 Baltic Sea port of Wismar, Germany



Conveyer capacity 720 tons
Speed 20m/min
Stroke 195m/s

2003 Koch Lekir, Malaysia



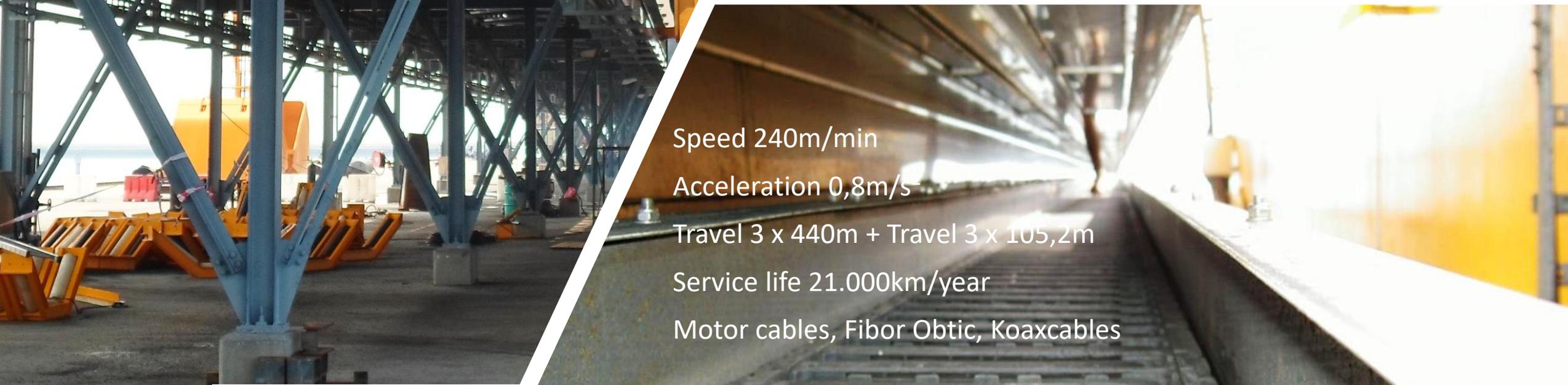
Speed 240m/min

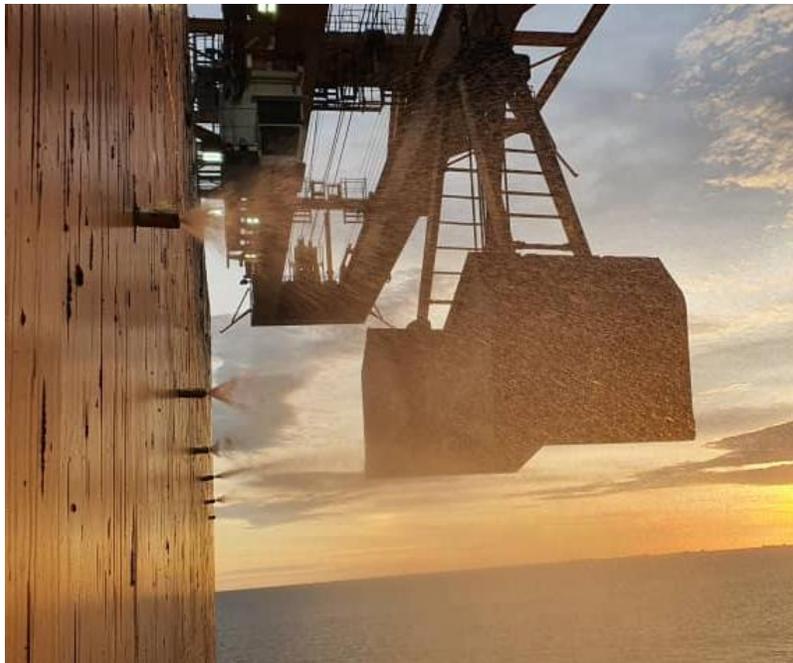
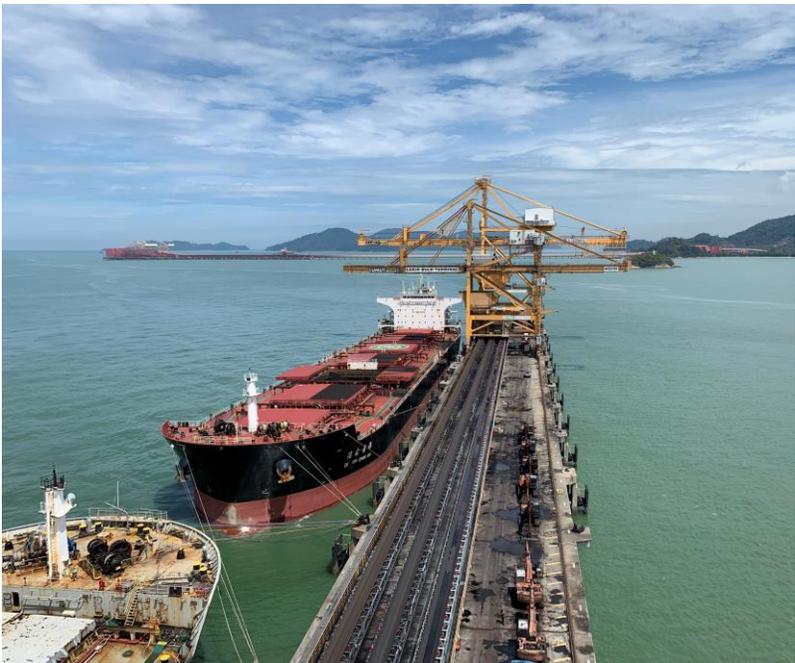
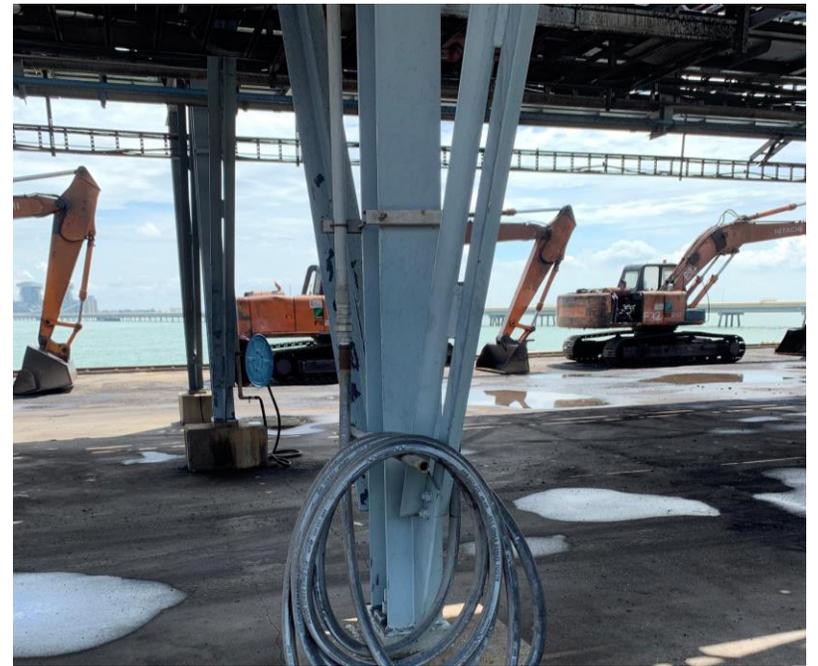
Acceleration 0,8m/s

Travel 3 x 440m + Travel 3 x 105,2m

Service life 21.000km/year

Motor cables, Fiber Optic, Koaxcables





2004 Emo, Rotterdam

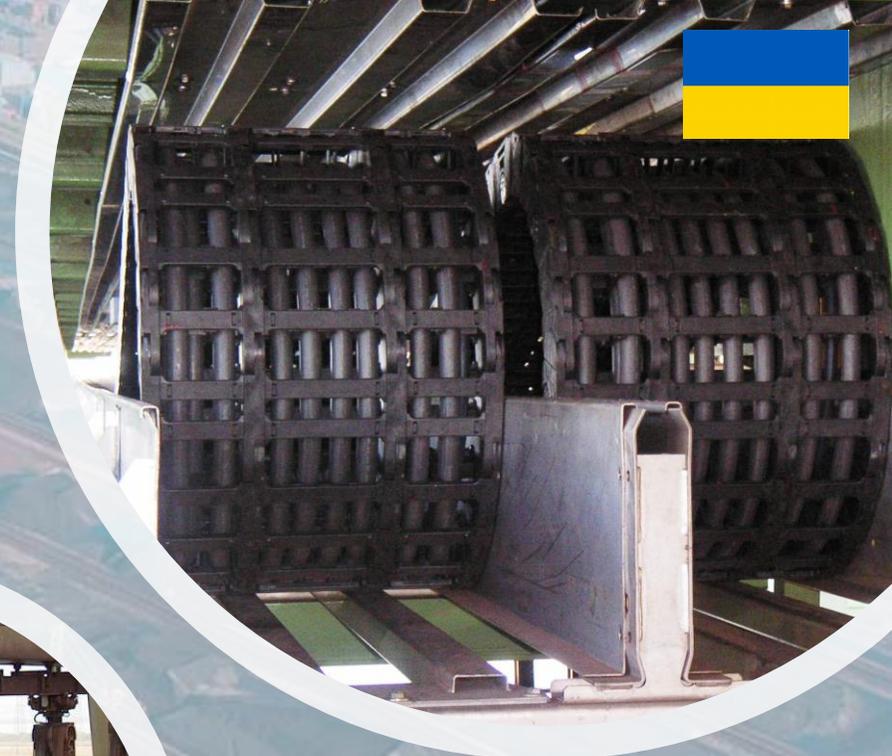
Speed 4m/sec.

Acceleration 0,8m/s²

Travel 105,2m

Service life 21.000km/year

Motor cables, Fiber Optic, Koaxcables





2017 Bedeschi Sonmez Cement Shipunloader



Project Name : Petrokimia Continuous Ship Unloader

Travel Length : 250 Meters

Project Location/Time : Gresik, East Java, since 2012
Material Handled : Raw Material

Using e-chain® series 5050C with chainflex® CFCrane 20kV medium voltage cables – retrofits Cable Reel Industry : Fertilizer/Port



2010 AMORAS Belgium
110kg/m

... up to 500.000 tons of mud are beeing pumped into this circle yearly ...



Container-Rotation in Coal-Power-Plant: Chvaletice / Czech Republic

Rotation angle 180°

Outer radius 4,9 m

Inner radius 3,8 m

Speed 0,25 m/s

Acceleration $0,1 \text{ m/s}^2$

e-chain® 5050.51.500/3800.0

More than 23 years save operation!

2012 Soja 5x 85m





2013 UREA 263m

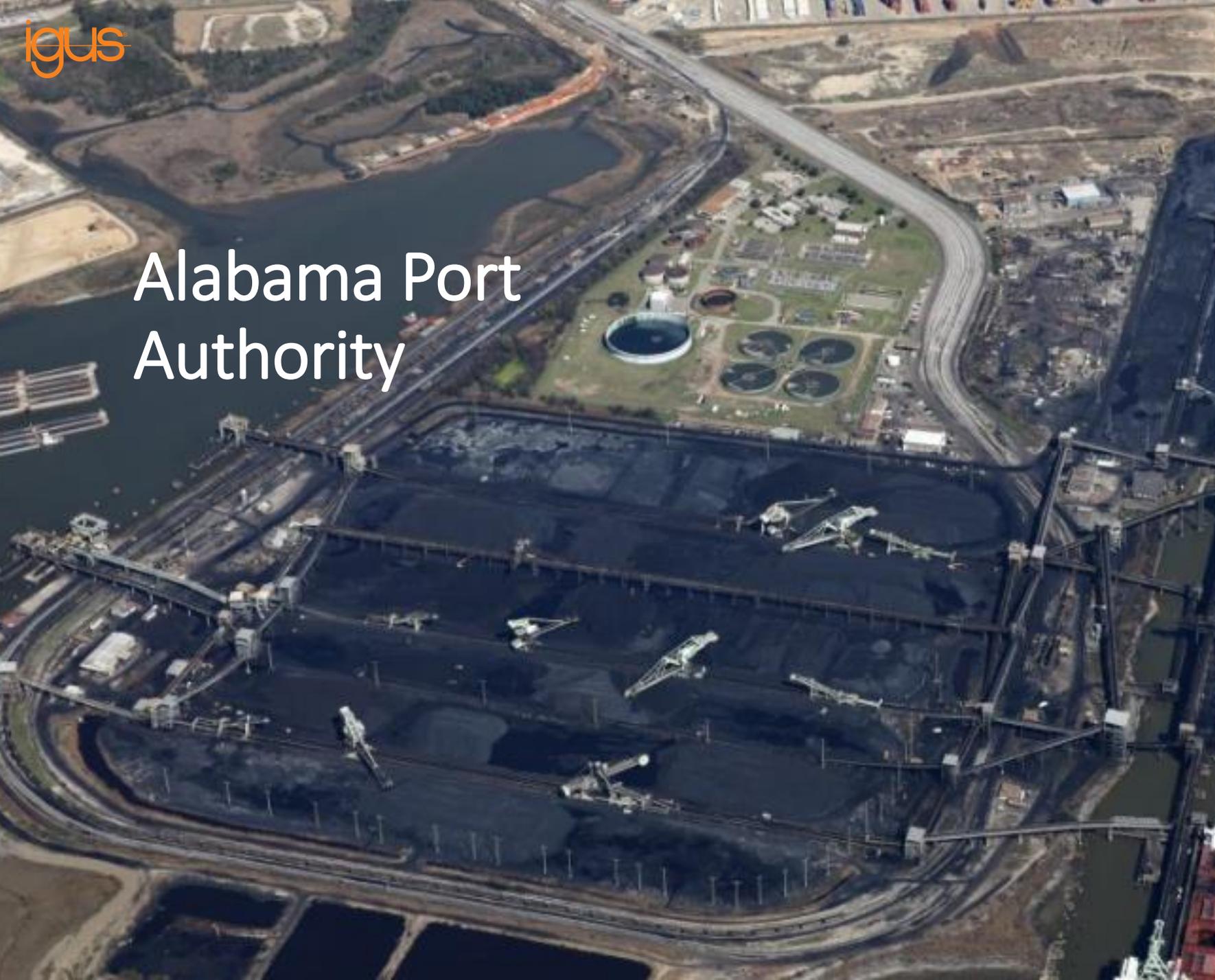


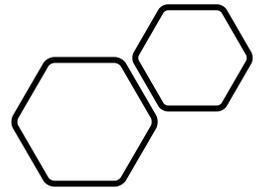
2008 RWE Germany

- Bucket Wheel Reclaimer 260
- Bucket Wheel Reclaimer 284
- Bucket Wheel Reclaimer 259
- Bucket Wheel Reclaimer 289
- Bucket Wheel Reclaimer 292
- Bucket Wheel Reclaimer 293



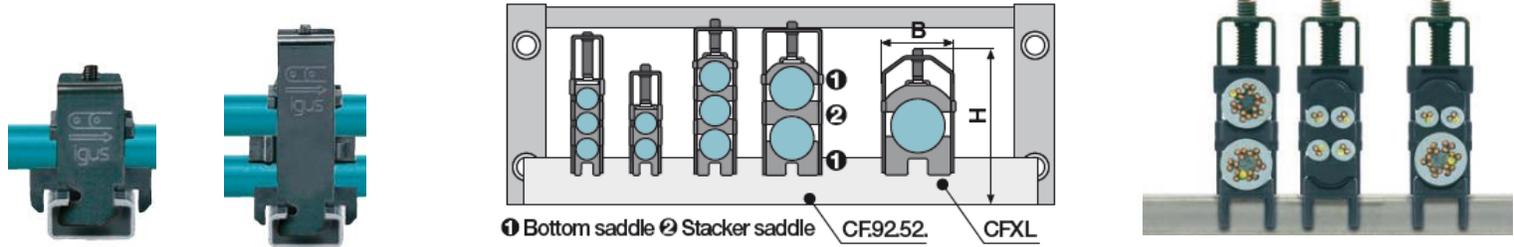
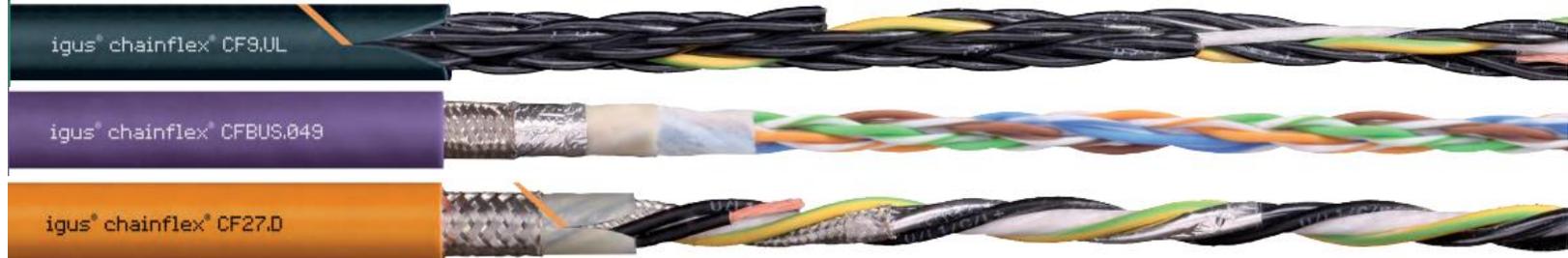
Alabama Port Authority





2017 FLSmidth Stacker 220° in South-Africa, Grooteluk Cole Mine

... components ...



installtion service Ship-to-Shore crane



Retrofit of the existing power supply – achieving energy savings through electrification

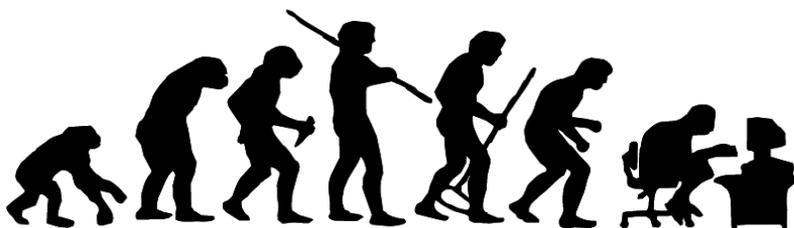
- No extra drives
- Cable length savings by up to 50%
- 13t weight reduction on 400m stroke
- Less stress on cables, more life time
- Cross section reduction
- Hard wired system
- Energy savings
- Maintenance cost savings

smart plastics
clever products become intelligent



Malte Moeller

Engineering Project Manager
Phone: +49-2203-9649-7267
Cell: +49-173 729 34 97
mmoeller@igus.net



Cost down & life up

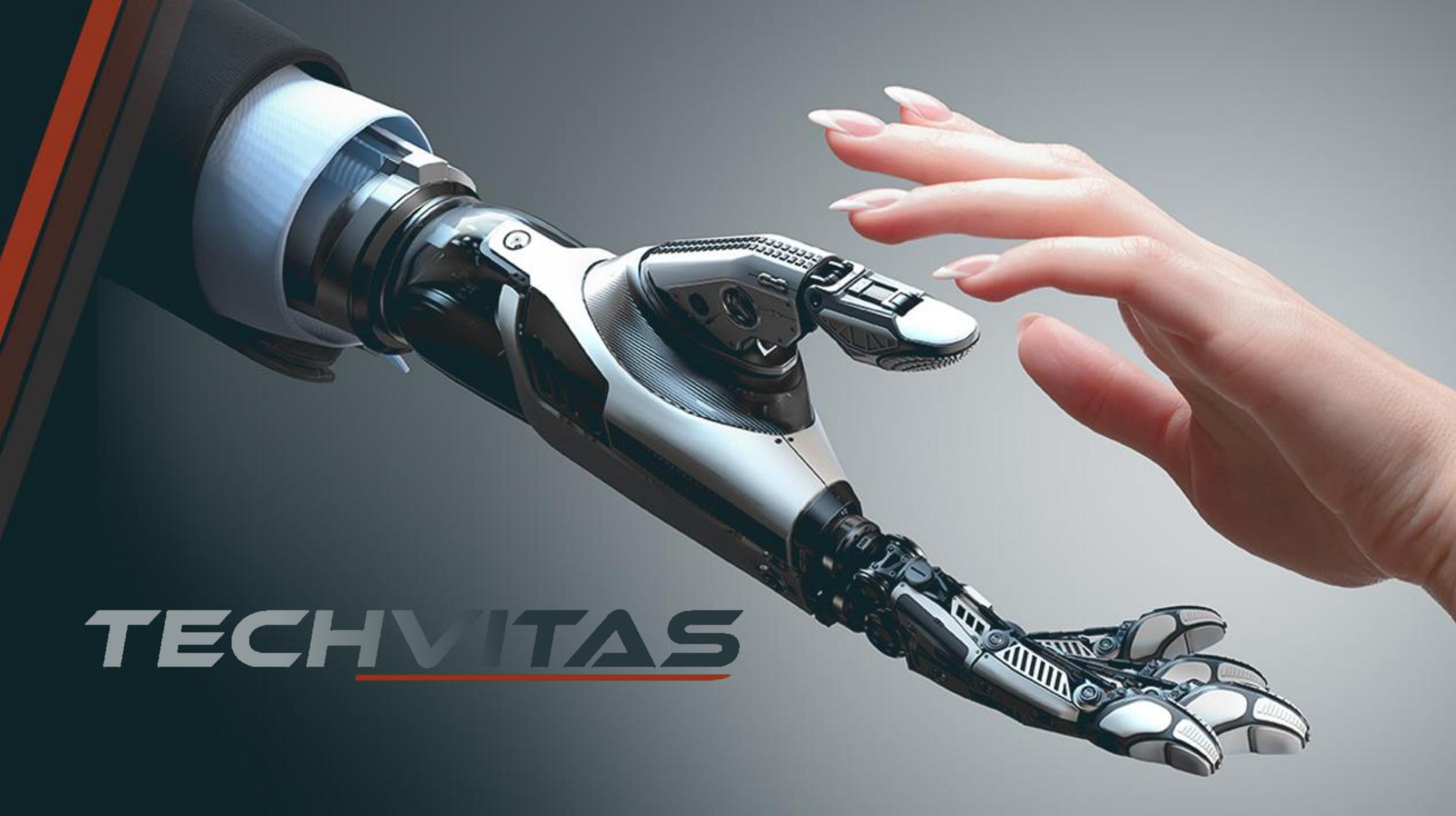
TECHVITAS

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Technical MANAGER

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☎ +371 24 241 242
✉ valdis@techvitas.lv | info@techvitas.lv



...energy savings on which crane?



TECHVITAS

ABOUT US



22 Years in the market

7 Sales countries

150 Employees

19,5 M € Sales (FY 2021)

OUR STRENGTH – FULL PRODUCT RANGE (FROM BOLT TO ROBOT)

Long term experience
and knowledge

Professional customer service

Top quality
products

Economy for
customers

Well known brands

Reliable deliveries



REPRESENTED BRANDS – MORE THAN 60 BRANDS

rexroth
A Bosch Company

AVENTICS
Sales Partner

RENOLD

piab

COGNEX

UNIGRIPPER

ACE

SIEMENS

MARTENS
Tradition and innovation since 1929

Made for Motion **KTR**

maier heidenheim

KUKA

WEG

igus

Accuride
Always Moving Forward

KOTI

REGINA

ROLLON
BY TIMKEN

HARTING

METAL WORK
PNEUMATIC

ROSTA

WINKEL

KRAUS
Eine Idee voraus

SIKO

UR

UNIVERSAL ROBOTS

SICK
Sensor Intelligence.

BANDO

ASCO
numatics

SKF

BOCE

elbe ORIGINAL GELENKE **elso**