

**Top Quality  
For *Railway Solutions***



**TEAFLEX<sup>®</sup>**  
INDUSTRIAL CABLE PROTECTION

# *The Company*

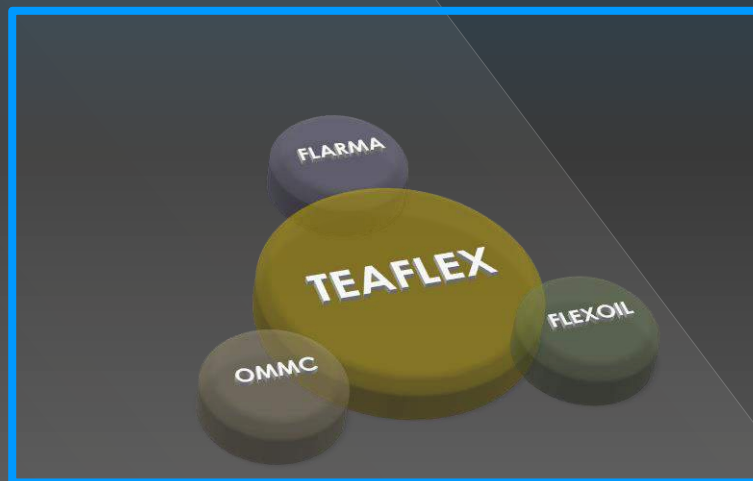
- ◎ TEAFLEX Spa, on the market from 70s, is a leader company for Electrical Cable Protection is a dynamic company, up to date, every day faces the challenges of the market, triggering a great capacity for innovation of the group.
- ◎ Thanks to an international agents' network and associated companies, Teaflex has a global presence, providing qualified and high level contact.
- ◎ Teaflex products are suitable for use in an exceptionally wide range of areas, from railway, civil and industrial plants, to robotics, electric and nuclear power stations, machine tools and automotive.

# The Group

Teaflex Spa leads a strong and consolidated group, composed of 4 firms that combine their skills and ability to achieve a common goal.

Teaflex group produces in Italy metal and plastic conduits with relevant fittings, cable glands, pipes, braids.

The group is composed as follows:



# RAILWAY References

## Hitachi Rail

- ◉ Tram Torino (2021)
- ◉ Tram Florence (Sirio)
- ◉ Metro LIMA
- ◉ Trains VIVALTO
- ◉ Trains TSR
- ◉ EMU CARAVAGGIO
- ◉ Metro LEONARDO
- ◉ Metro SALONICCO
- ◉ Metro TAIPEI
- ◉ Metro MILANO
- ◉ Metro Miami
- ◉ Metro Milan L4
- ◉ Metro Sanying
- ◉ Metro Madrid

## Alstom

- ◉ Cisalpino
- ◉ West Coast Main Line (4 pendolini and 62 coaches)
- ◉ GTT Gruppo Torinese Trasporti (9 trains CTR)
- ◉ Modernization concerning trains CTR on behalf of Trenitalia
- ◉ Helsinki – San Pietroburgo
- ◉ NTV- Nuovi Treni Veloci (Italo)- High Speed Trains
- ◉ Minuetto Trains
- ◉ New Pend (Frecciarossa)- High Speed
- ◉ ETR Finland
- ◉ China New Pend- High Speed
- ◉ PKP-SBB
- ◉ CORADIA MERIDIAN
- ◉ Revamping coaches ZI
- ◉ NTV Italo EVO

## Bombardier

- ◉ E464 Traxx Renfee (Spain)
- ◉ Comsa Renfee Locomotives (Spain)
- ◉ Trenitalia E483
- ◉ E483 WBS Enm Veicle 8 (Swiss)
- ◉ CTR Ferrovie Nord Milano
- ◉ Angel Train Traxx in Uk

## Ansaldo Breda

- ◉ Trenitalia Treno E403 a
- ◉ Trenitalia ETR500 Pendolino
- ◉ Tram Sirio Milano – Napoli – Goteborg

## CAF

- ◉ Loco E 402 A (Trenitalia)

# RAILWAY References

## **ATM, Milano**

- ⦿ Meneghino AB revamping
- ⦿ 1936 trains dated revamping

## **GTT, Torino**

- ⦿ Minuetto revamping

## **Hyundai-Rotem**

- ⦿ 161 coaches SCRRRA (Usa, Southern, California: passenger coaches double decker)
- ⦿ 75 coaches MBTA (USA, Boston, Massachussets: passenger coaches double decker)
- ⦿ 102 coaches AM3 (Grecee, Athens, EMU: Attiko Metro SA)

## **H.Cegielski - Fabryka Pojazdów Szynowych Sp. z o.o.**

- ⦿ 90 coaches 111A-141A - modernization (Poland, PKP Intercity)
- ⦿ 20 trains EN57 FENIKS - modernization (Poland, PTS)
- ⦿ 01 railway vehicle type 213Ma - modernization (Poland, Lubuskie)

## **Newag S.A.**

- ⦿ 20 three-car metro trains INSPIRO (Bulgaria, Metropolitan EAD Sofia)
- ⦿ 20 electric locomotives DRAGON 2
- ⦿ 01 electric locomotives DRAGON E6ACTd (Poland, Budokrusz)
- ⦿ 05 electric locomotives DRAGON E6ACTd (Poland, Freightliner PL)

## **Solaris Bus & Coach S.A.**

- ⦿ 41 Trams TRAMINO XL (Germany, Leipziger Verkehrsbetriebe GmbH)

## **Stadler Polska Sp. z o.o.**

- ⦿ 20 trams TRAMINO XL (Germany, Leipziger Verkehrsbetriebe GmbH)

## **PESA Bydgoszcz S.A.**

- ⦿ 38 diesel locomotives ST44 - modernization (Poland, PKP Cargo)

# RAILWAY References

## **ZNTK Mińsk Mazowiecki S.A.**

- 06 trains ED72 – modernization (Poland, Prewozy Regionalne) – metal system
- 36 trains EN57 – modernization (Poland, Prewozy Regionalne) – metal system
- 05 trains EN57 – modernization (Poland, Koleje Wielkopolskie) – metal system
- 39 trains EN57 – modernization (Poland, Koleje Mazowieckie) – metal system

## **RAIL POLSKA Sp. z o.o.**

- 02 electric locomotives 207E (Poland)

## **ZPS Sp. z o.o.**

- 02 railway special vehicles (Poland, PLK)

## **Beijing Yowelt Co., Ltd.**

- Metro Guangzhou City line 4, Line 5
- Metro Beijing Line 8
- CRH3, CRH2 high speed train
- Metro Chengdu City line

## **Woojin**

- 84 coaches DAEGU MONO (Korea, Daegu Metro Line 3: Monorail)

## **Rowin**

- 56 coaches SMRT56 (Korea, Seoul Metro Line 7, EMU)

## **Buwon Tech.**

- SMRT Mall Biz (Korea, Seoul Metro Line 5-8, EMU, Remodeling Biz)

## **Trenitalia**

- Customized KIT for maintenance concerning Frecciarossa and Frecciargento with RWP conduit with stainless steel braid (special cut and assembled with fittings)
- Revamping Medium Distance (MD) coaches



# *Teaflex Products and Markets*



# Management Systems Certifications



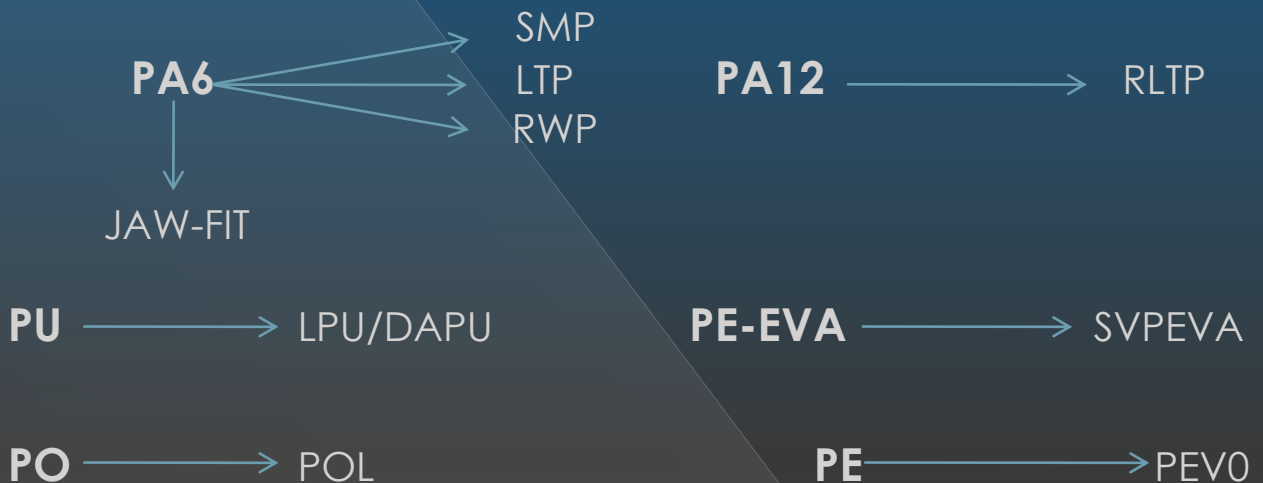


# Material Certifications



# Railway Products and Materials

Teaflex spa supplies a wide range of standard and custom solutions used for the protection of cables in the Railway and Transit Industry realized with different materials as Polyamide (PA), Polyurethane (PU), Polyethylene-EVA (PE-EVA), Polyolefin (PO) and Polyester (PE)



# Railway Products and Approvals

<b><u>NORMS</u></b>	<b>SMP</b>	<b>RWP</b>	<b>LTP</b>	<b>RLTP</b>	<b>POL</b>	<b>PE V</b>	<b>LPU/DAP U</b>	<b>SVPEV A</b>	<b>JAW- FIT</b>
<b>UNI CEI 1170</b>	LR4	LR4	LR4	LR4	/	LR4	LR4	LR4	LR4
<b>DIN 55102</b>	S4/SR2/ST 2	S4/SR2/ST2	S4/SR2/ ST2	S4/SR2/ ST2	/	/	/	/	/
<b>SMP 800-C</b>	COMPLIES	COMPLIES	/	COMPLIE S	/	/	/	COMPLIES	COMPLIE S
<b>ASTM E162</b>	COMPLIES	COMPLIES	/	COMPLIE S	/	/	/	COMPLIES	COMPLIE S
<b>ASTM E662</b>	COMPLIES	COMPLIES	/	COMPLIE S	/	/	/	COMPLIES	COMPLIE S
<b>ASTM E1354</b>	COMPLIES	COMPLIES	/	COMPLIE S	/	/	/	COMPLIES	COMPLIE S
<b>BOEING BSS7239</b>	COMPLIES	COMPLIES	/	COMPLIE S	/	/	/	COMPLIES	/
<b>NFF16101</b>	F1	F1/I3	F2/I2	F2/I3	/	F1/I 2	F1/I3	/	F2/I3
<b>UL1696</b>	E124066	/	/	/	/	/	/	/	E124066
<b>EN 45545-2</b>	HL2	HL2	HL3	HL2	HL3	HL3	HL3	HL3	HL2
<b>BS6853</b>	/	/	/	/	IA EXT/IB INT	/	/	/	/
<b>PN-K- 02511:2000</b>	/	CZ IK- 27/2014	CZ IK- 27/2014	CZ IK- 27/2014	/	/	/	/	CZ IK- 27/2014

# *Jaw-Fit System*

- Our solutions have exceeded customer expectations in areas where other products fall short. The range IP68 - IP69K- fittings makes for a smooth ride with shock and vibration proof connections to the conduit.
- Our Jaw Fit System makes installation quick, secured and easy, saving time and money.



# Degree of Protection

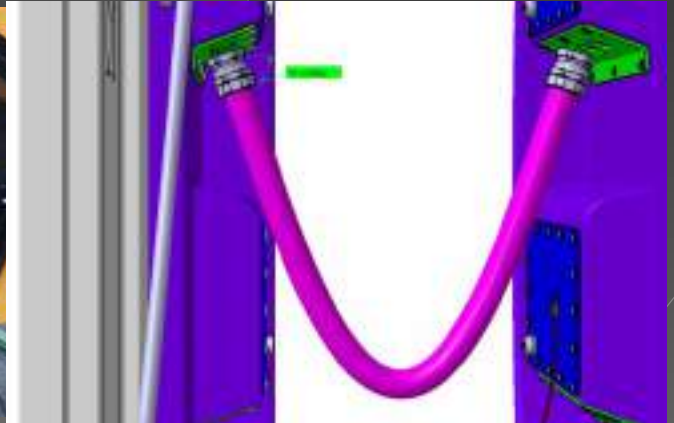
IP68 – IP69K

- 6 Protection against dust. Penetration of dust is totally excluded.
- 8 Protection against immersion. Water must not penetrate the container held in immersion for an undefined period of time.
- 9K Protection against high pressure (80–100bar) and high temperature (80°C) water jets (deep cleaning applications).



# Custom Solutions

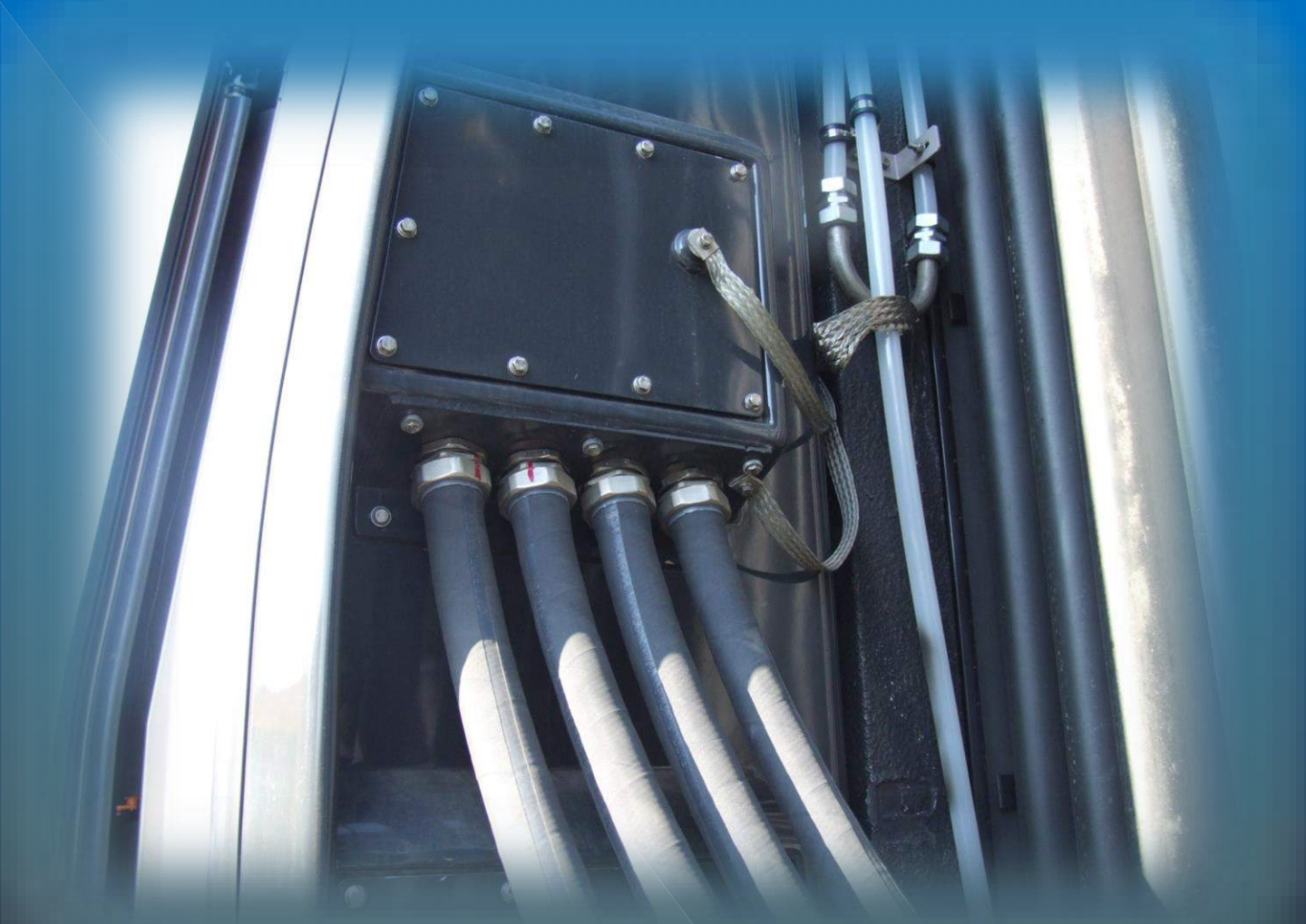
- Teaflex spa supplies a wide range of standard and custom solutions used for the protection of cables in the Railway and Transit Industry.
- Our solutions have been designed in accordance with railway engineers and designers and can be applied in the resilient and redoubtable environments in and around rail applications that include areas underneath, on top and between rail cars.
- Teaflex spa proposes also innovative keys for Railway Infrastructure
- A Test-machinery has been realized for testing the mechanical resistance of the Kit.



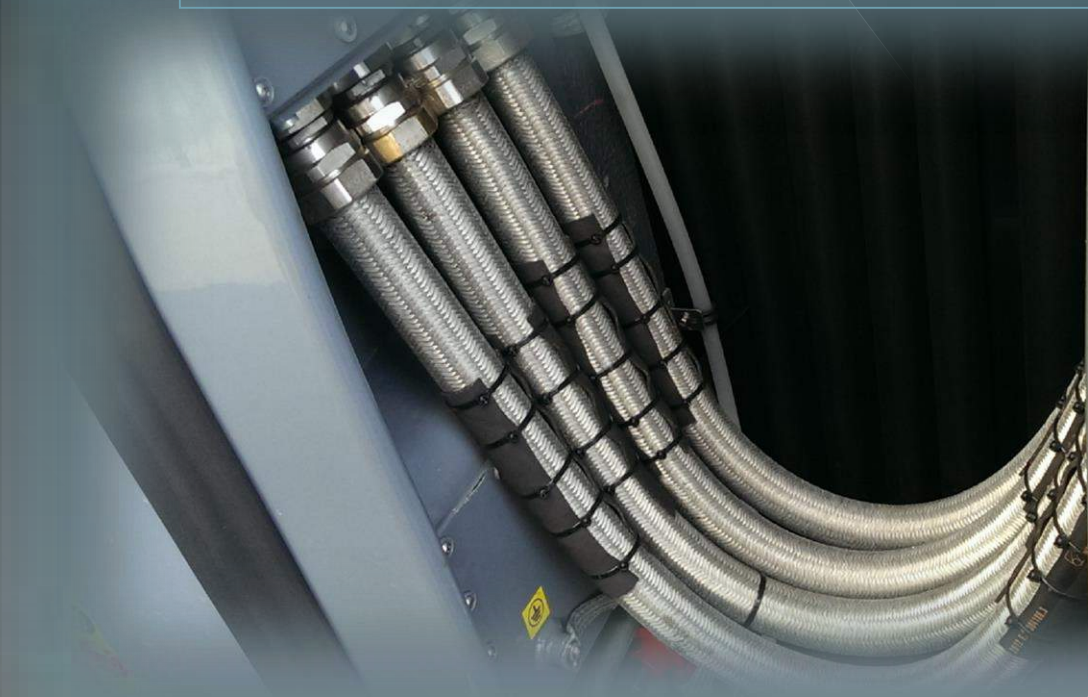


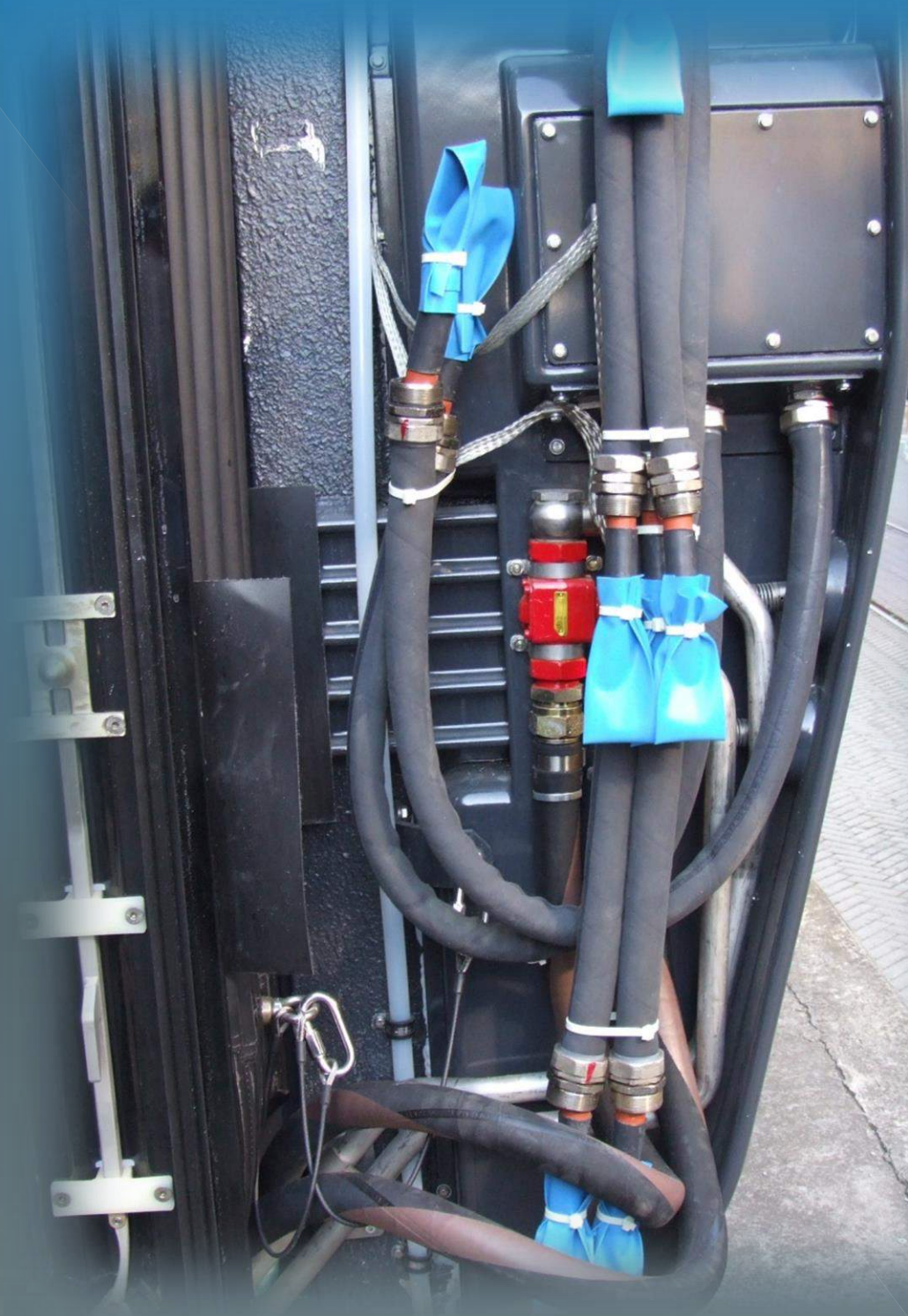
# ***RAILWAY***

## ***TEAFLEX APPLICATIONS***



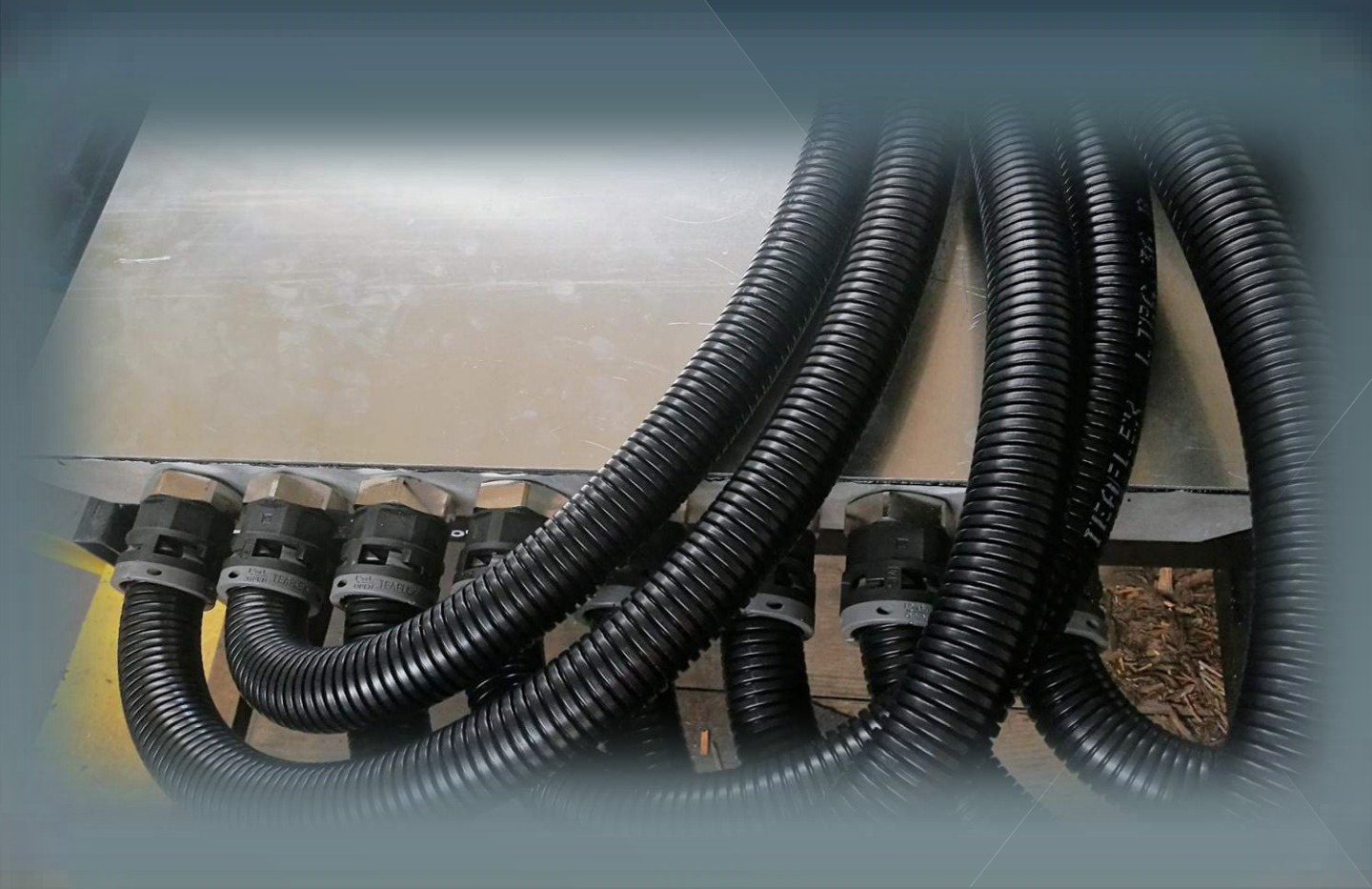
HV jumper cable as inter car body connection





RWP polyamide conduits, PAR fittings

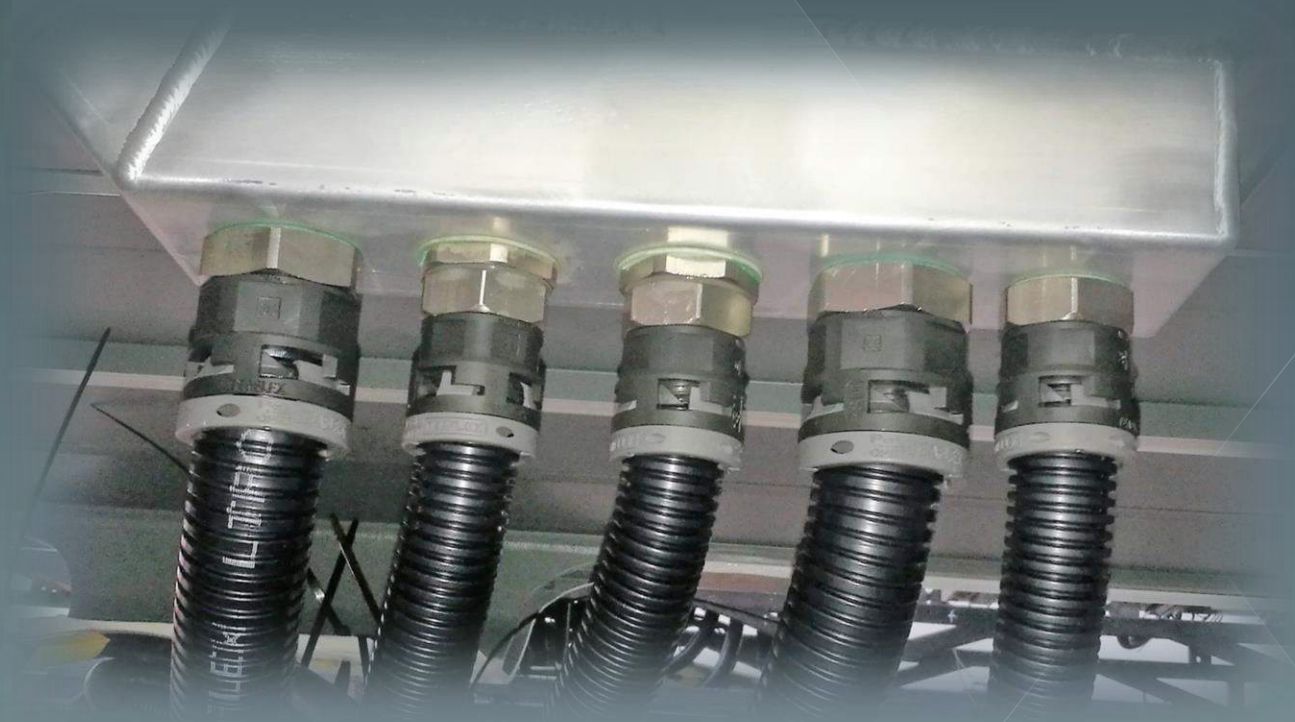




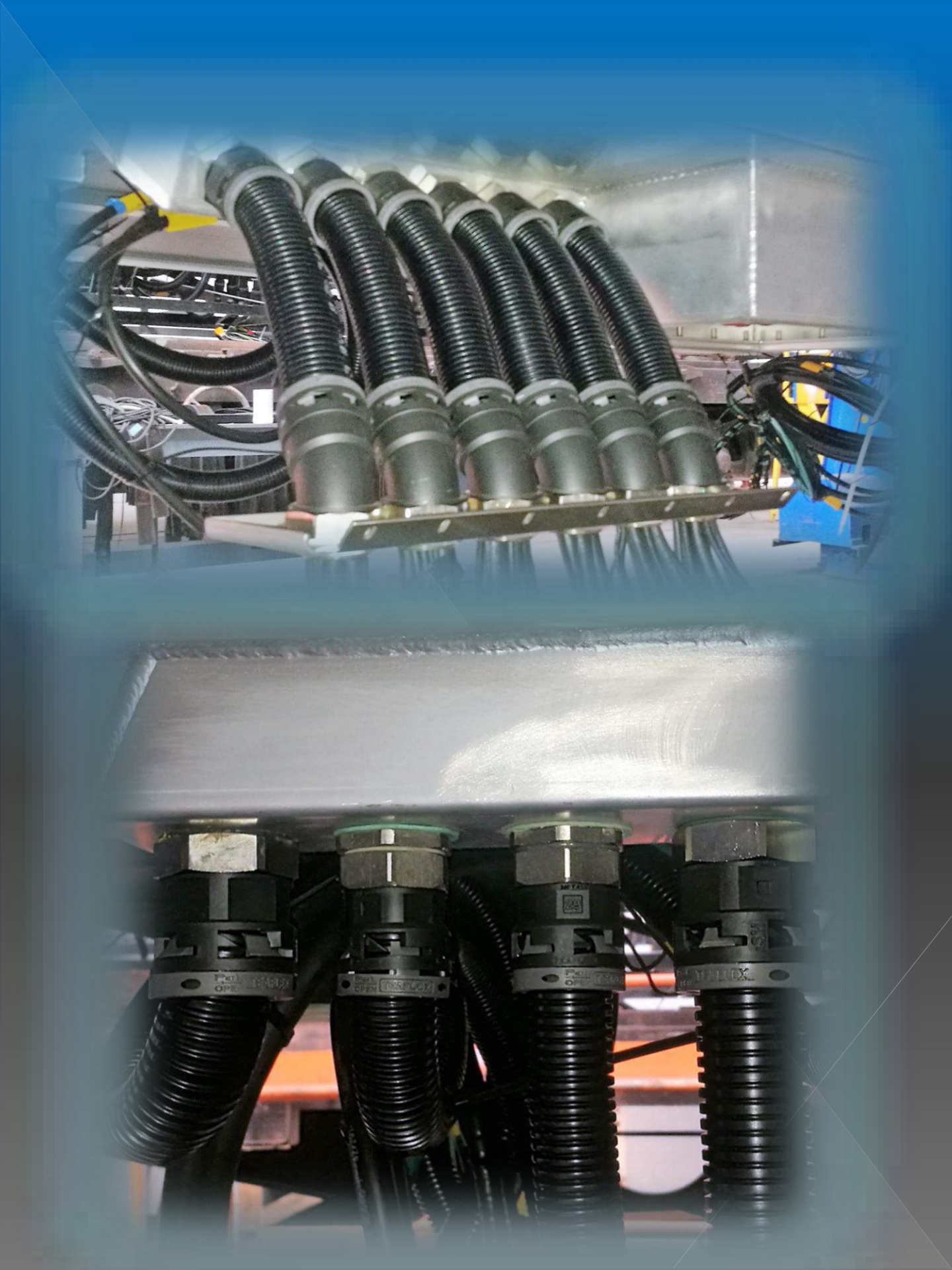




JAW FIT SYSTEM













PEV0 – Polyester braid sleeve



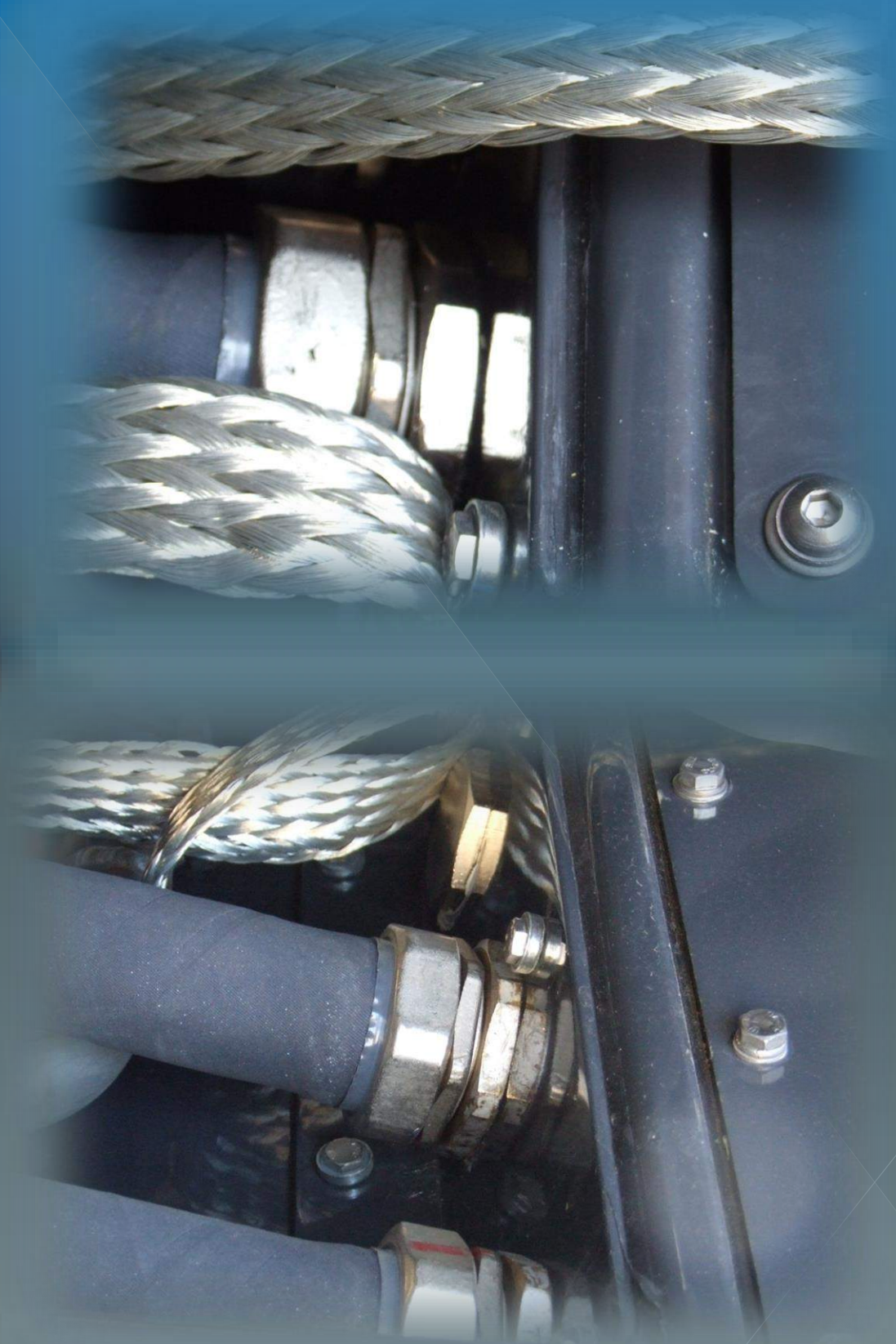




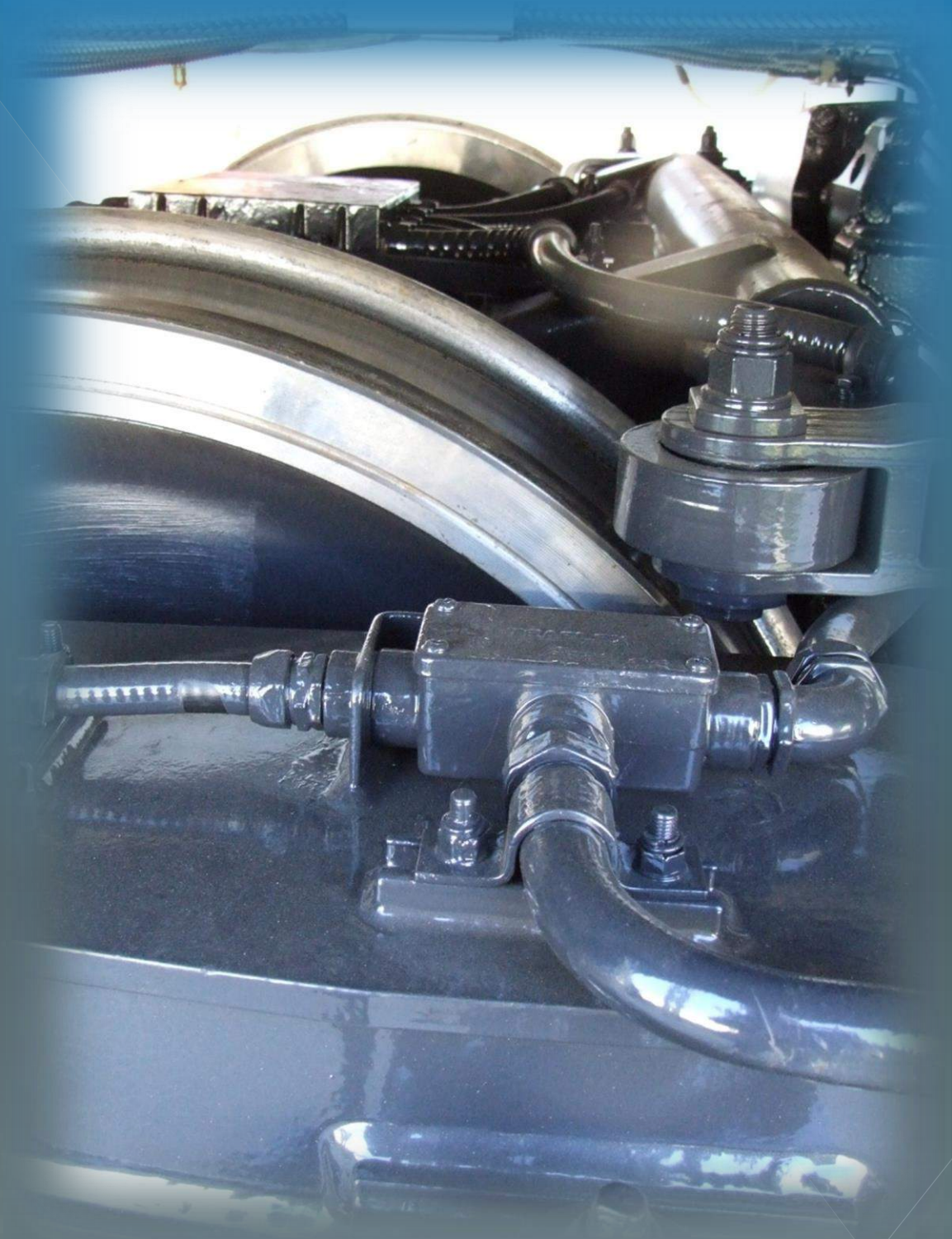


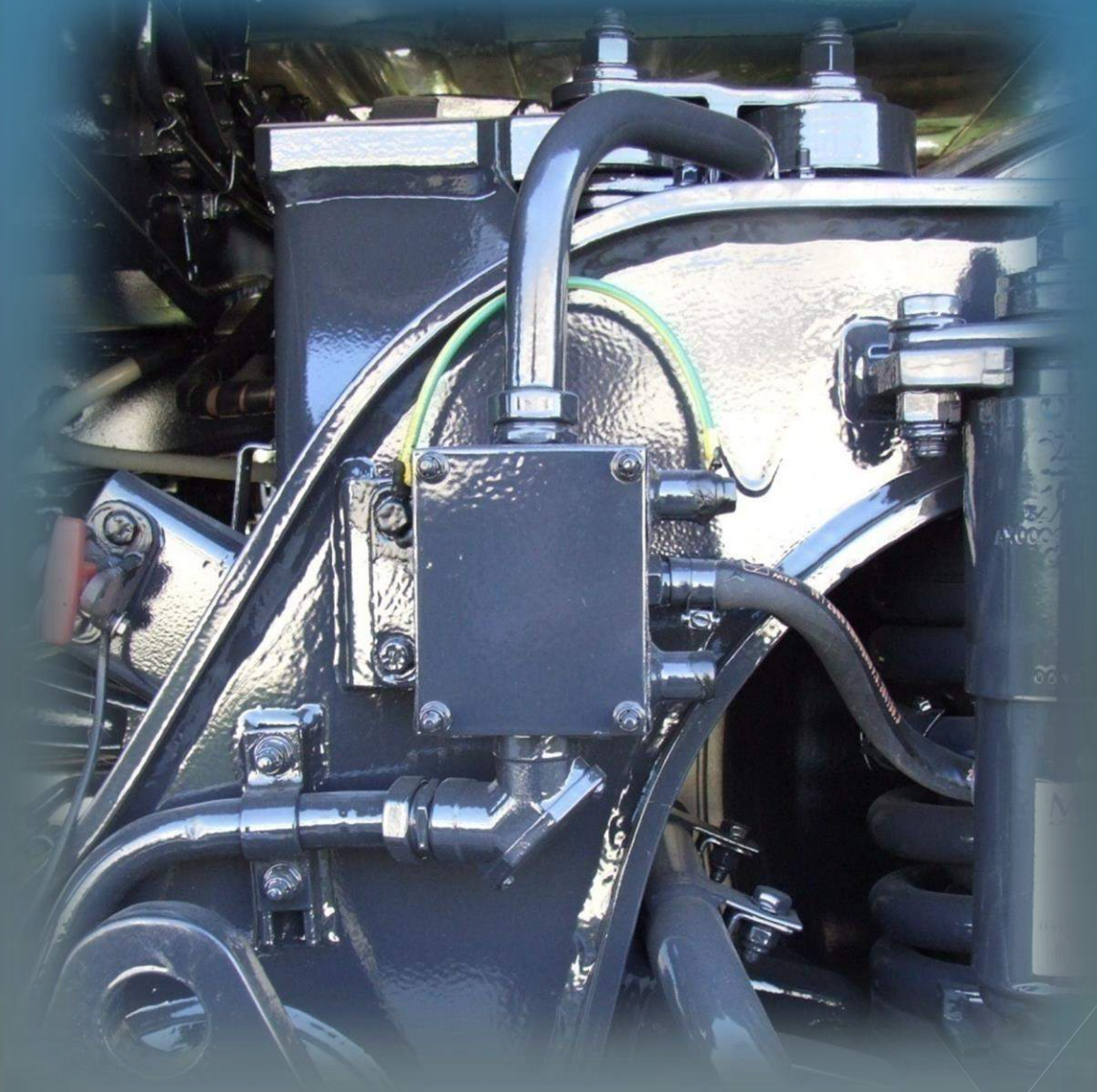
10XMT1















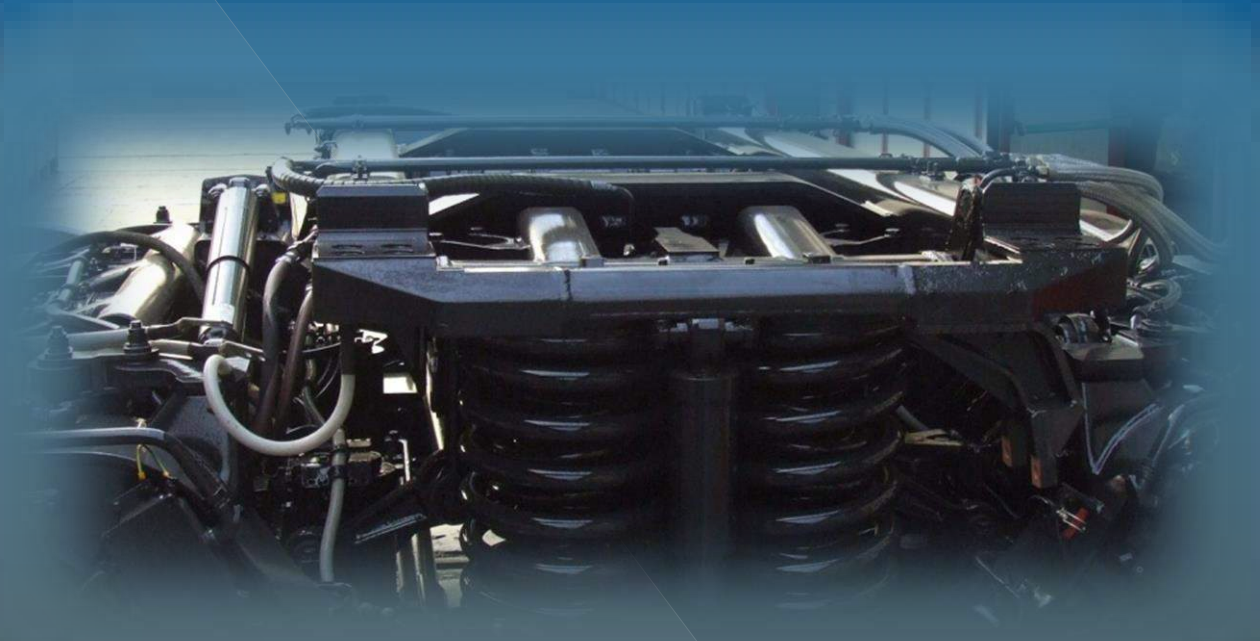


A close-up photograph of a cable gland assembly. Several thick, reddish-brown cables are bundled together and pass through a series of metal glands mounted on a white, rectangular panel. The glands are secured with hexagonal nuts and washers. The cables are bundled with a black braided shield. The background is dark and out of focus.

FF cable glands series

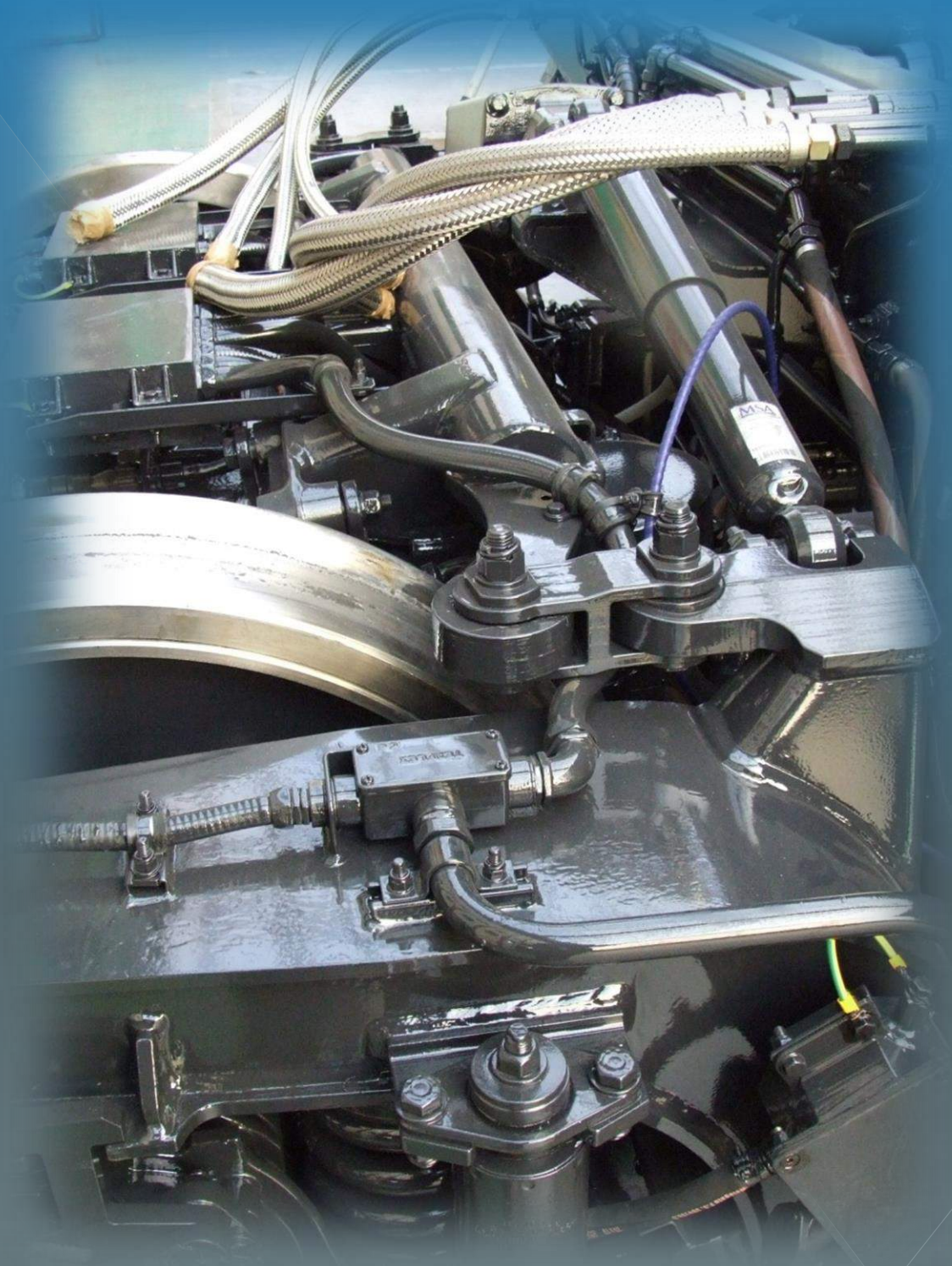






RWP conduit with stainless steel braid (customized KITFR001 and KITFR002)

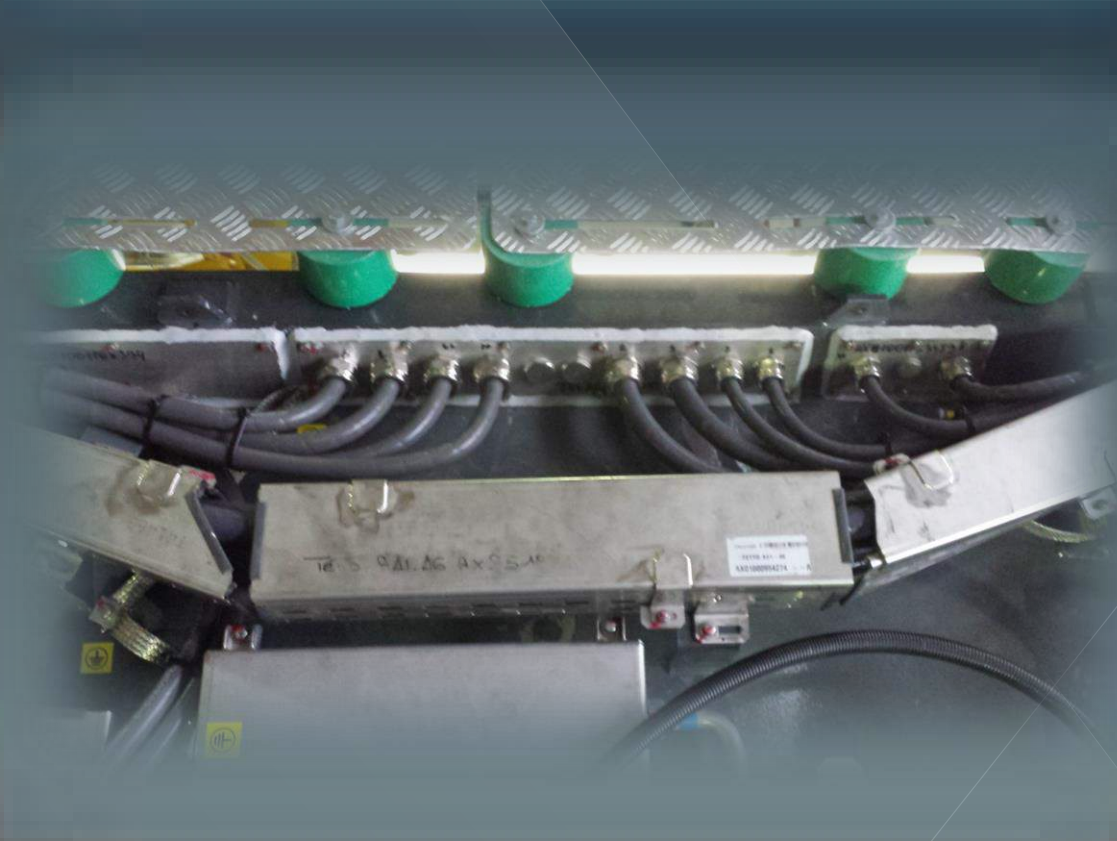
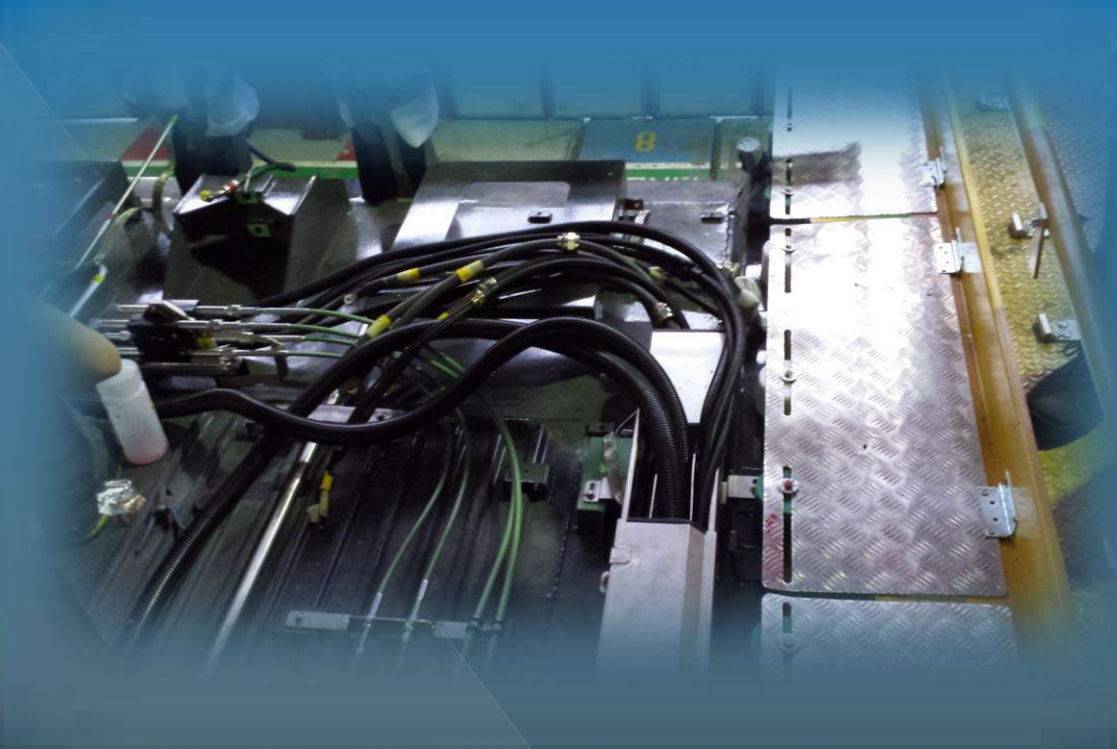


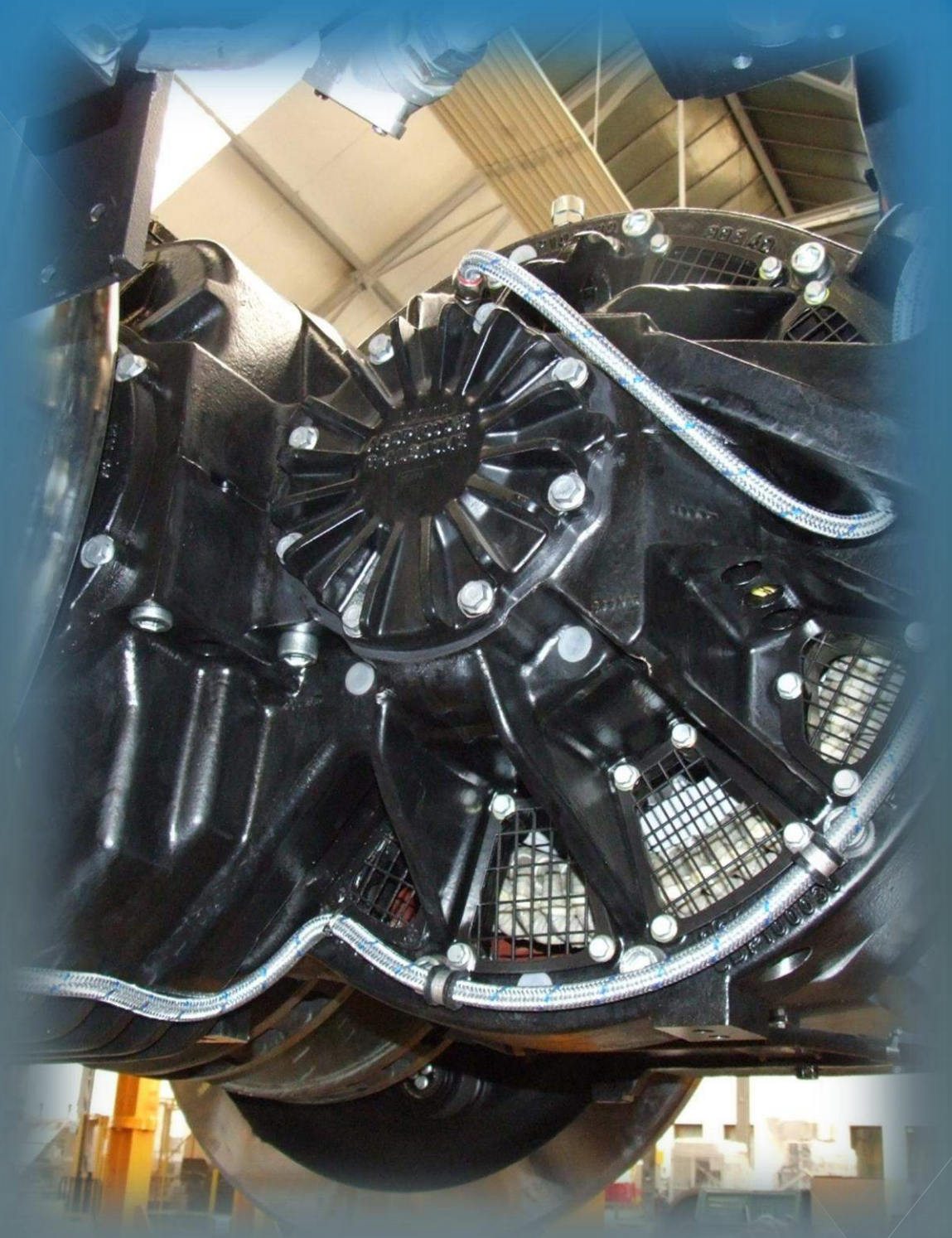




RWP conduits and JAW-FIT SYSTEM fittings

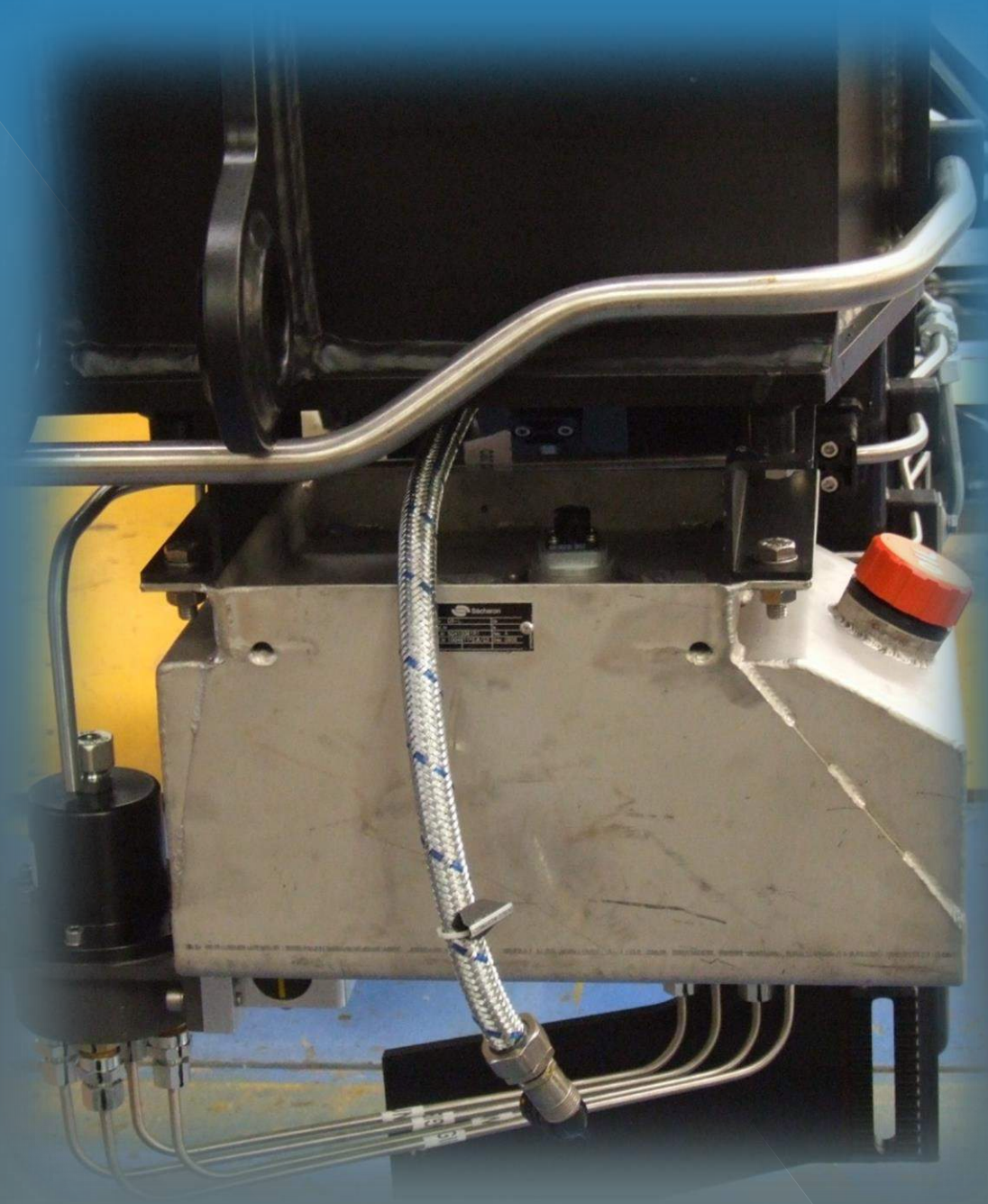


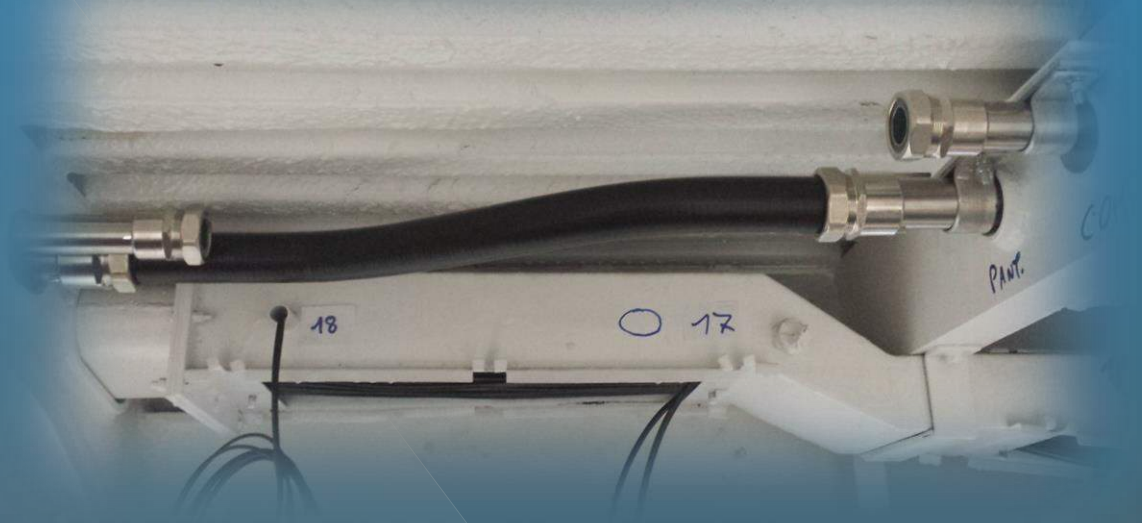




SVPEVAT conduit with CM series fitting

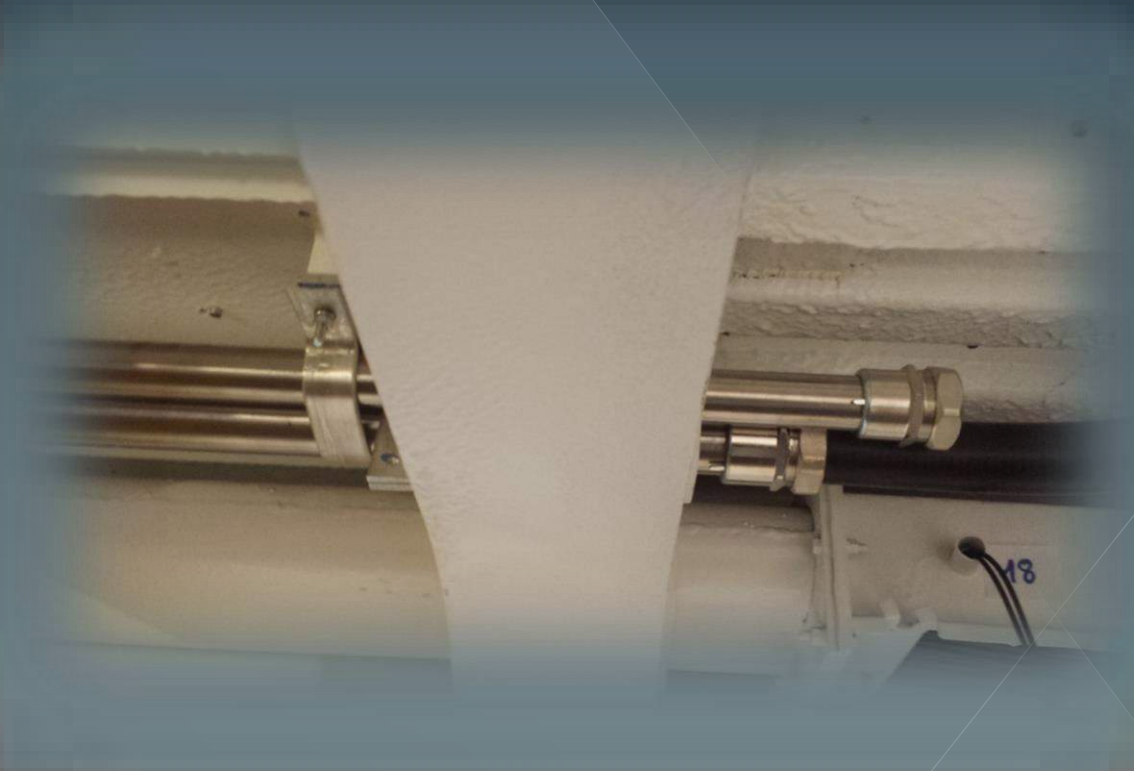
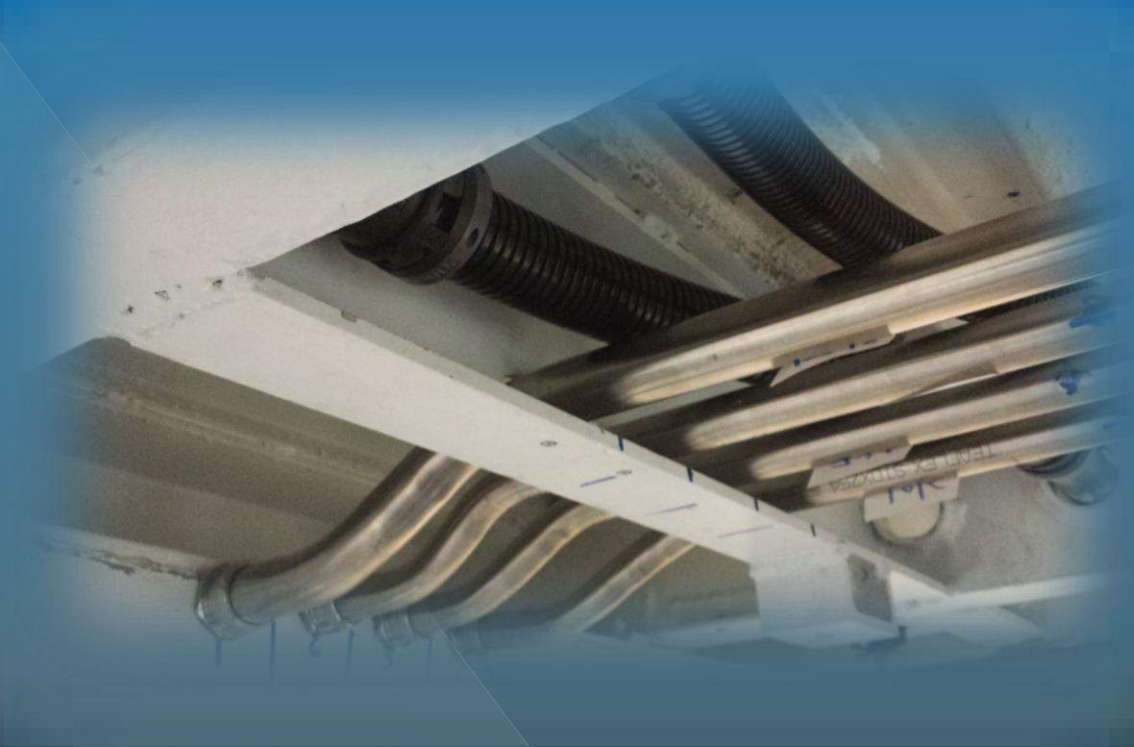






## STD STAINLESS STEEL PIPE AND ACCESSORIES

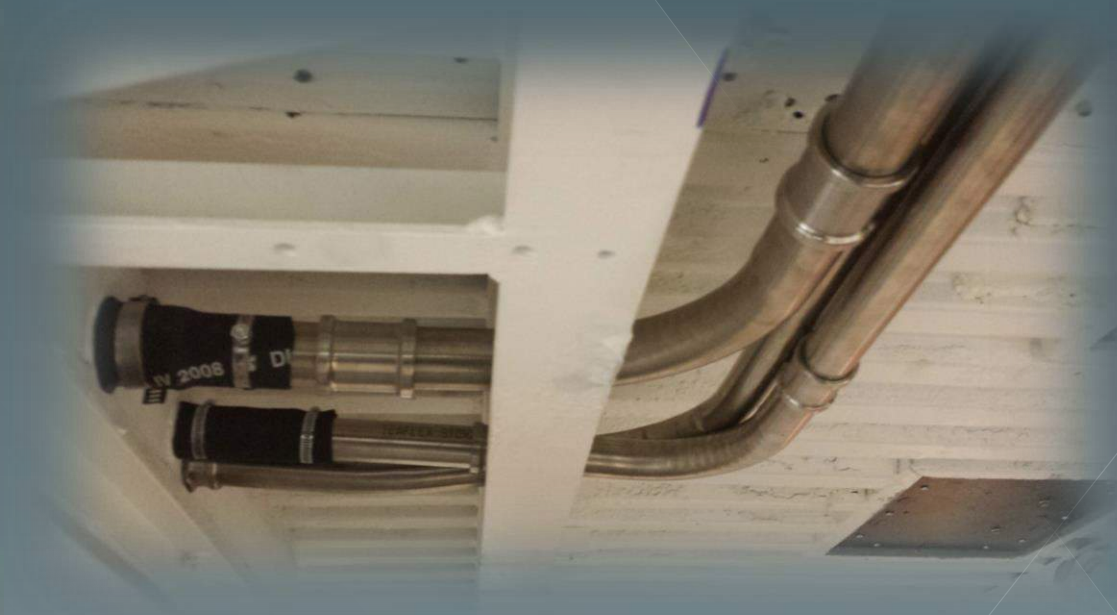
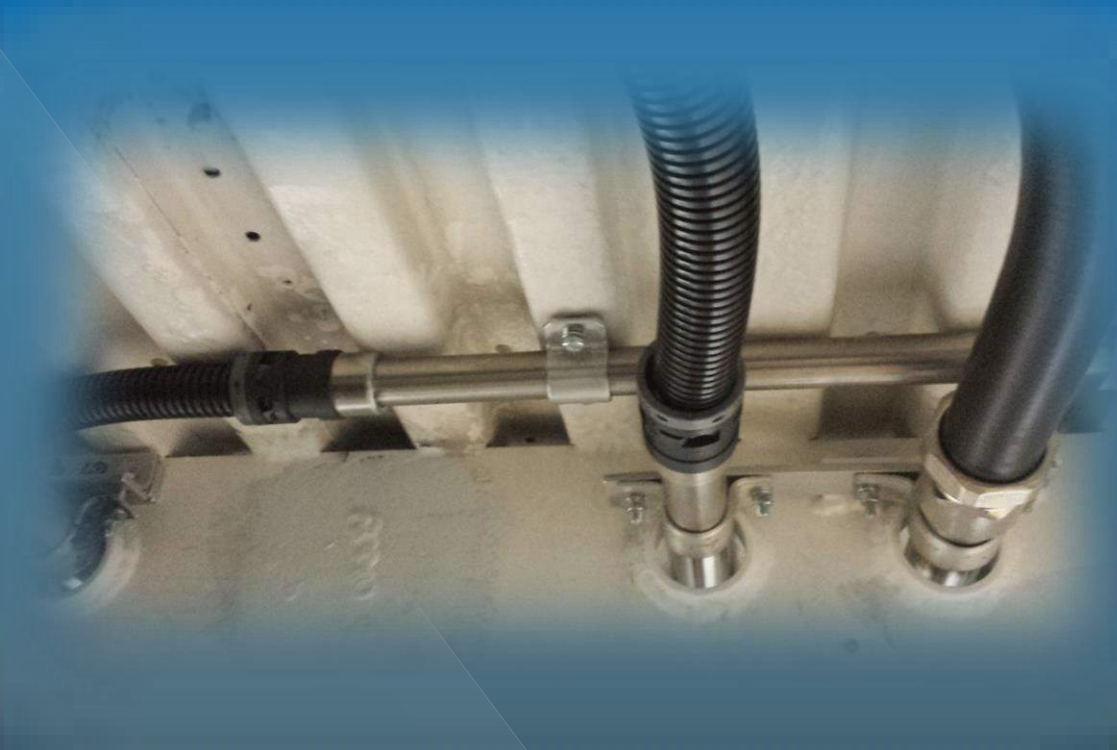














# *LET'S KEEP IN TOUCH*

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