

Inflammable substances, gases, fumes, mist or dust are an ever-present issue in many industrial sectors. This is because in conjunction with oxygen an explosive atmosphere can arise that poses a risk to life and limb in the event of one single spark.

In order to achieve the highest possible level of safety at all times, most countries have developed corresponding statutory requirements in the forms of laws, regulations and standards. During the course of the globalization process, great strides have been taken to create uniform guidelines for explosion protection.

With Directive 94/9/EC, the European Union had already created the prerequisite for complete standardization. In April 2016, it was replaced by the new Directive 2014/34/EU.

ATEX-compliant Flender couplings

Industrial couplings are subject to very high loading during day-to-day production processes. They transmit high torques, absorb large secondary forces and protect other, generally more expensive, drive train components.

A large proportion of the Flender couplings have been ATEX-certified for decades. We offer you an extensive range of safe connections for all kinds of applications. But for us, dealing responsibly with the issue of explosion protection includes constantly developing our product range further to ensure the safety of your plant and staff. This brochure provides you with a brief overview.

Our products bear the CE and EAC marks

In addition to the CE mark, our products also bear the Eurasian Conformity mark EAC of the customs union between Russia, Belarus and Kazakhstan. With this mark, we confirm that our products meet the technical requirements prescribed in these countries.



Further information on the subject of couplings:
www.flender.com/couplings

Further information on the subject of gear units:
www.flender.com/gearunits

Further information on the subject of applications:
www.flender.com/application-specific-gear-units

Further information on the subject of service:
www.flender.com/service

FLENDER BY YOUR SIDE.

All sectors of industry and raw-material extraction know Flender drive technology and the people behind it as highly capable and reliable. They require a flexible, forward-thinking partner for consulting and development that is at the same time a globally positioned, committed business partner. This is how we understand our mission. We want to stand at our customers' side under the name Flender, as part of the Siemens corporation.

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Article no.: PDMD-B10142-00-7600
 Printed in Germany
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Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

FLENDER COUPLINGS



ATEX COUPLINGS

TAKE EXPLOSION PROTECTION MEASURES, REDUCE THE RISKS

Flender offers a comprehensive range of couplings certified to the latest ATEX explosion protection directive.



MANDATORY SAFETY



Especially applications in the chemical and petrochemical industries, in the crude oil and natural gas extraction sectors, in mining, or in milling applications (for example, for grains or solids) include substances that are particularly flammable.

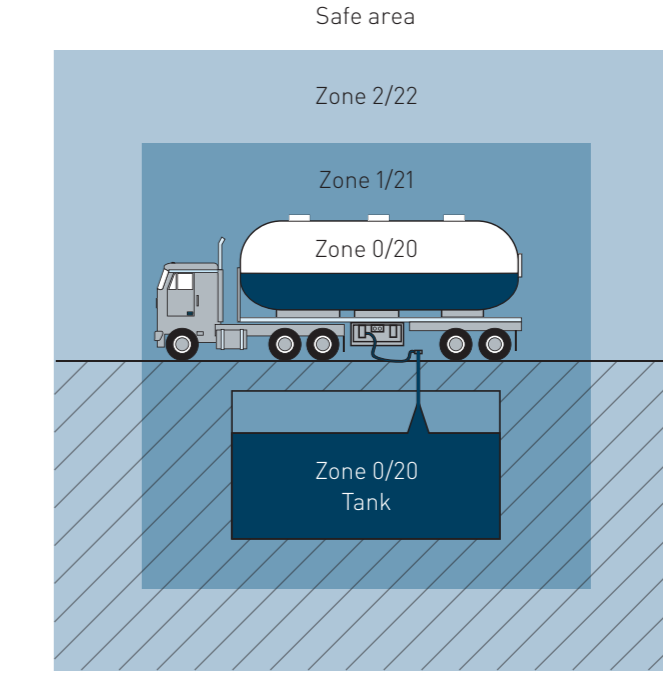
CE II 2G Ex h IIC T6...T4 GB X

II 2D Ex h IIIC T85°C...110°C Db X

I M2 Ex h Mb X

ATEX-COMPLIANT FLENDER COUPLINGS

<p>II Equipment group II → Equipment for use in other areas</p>	<p>2 2 → Equipment category → High degree of safety → Can be used in zones 1 and 2</p>	<p>G Mixture of air and gases creates a potentially explosive atmosphere</p>	<p>Ex h The equipment meets the requirements of one or more ignition protection types → Constructional safety (c) → Control of ignition sources (b) → Liquid immersion (k)</p>	<p>IIC "Typical gases" group II A → propane II B → ethylene II C → hydrogen</p>	<p>T6...T4 Temperature classes with maximum surface temperature in °C T1 → 450 T4 → 135 T2 → 300 T5 → 100 T3 → 200 T6 → 85</p>	<p>GB Equipment protection level (EPL) EPL "Gb" is equivalent to category 2G</p>	<p>X Special conditions</p>
<p>II Equipment group II → Equipment for use in other areas</p>	<p>2 2 → Equipment category → High degree of safety → Can be used in zones 21 and 22</p>	<p>D Mixture of dust and gases creates a potentially explosive atmosphere</p>	<p>Ex h The equipment meets the requirements of one or more ignition protection types → Constructional safety (c) → Control of ignition sources (b) → Liquid immersion (k)</p>	<p>IIIC Group III A → combustible flyings III B → nonconductive dust III C → conductive dust</p>	<p>T85°C...110°C Maximum surface temperature range</p>	<p>Db Equipment protection level (EPL) EPL "Db" is equivalent to category 2D</p>	<p>X Special conditions</p>
<p>I Equipment group I → Equipment for use in underground operations</p>	<p>M2 M2 → Equipment category</p>		<p>Ex h The equipment meets the requirements of one or more ignition protection types → Constructional safety (c) → Control of ignition sources (b) → Liquid immersion (k)</p>			<p>Mb Equipment protection level (EPL) EPL "Mb" is equivalent to category M2</p>	<p>X Special conditions</p>



Zones
Potentially explosive areas are classified into zones. The zone classification depends on the probability in terms of time and location that a hazardous potentially explosive atmosphere is present.

- Zone 0/20**
Hazard exists continuously, for long periods or frequently
- Zone 1/21**
Hazard exists occasionally
- Zone 2/22**
Hazard exists rarely and for a short duration

Equipment groups/categories
Equipment is classified into equipment groups. Each equipment group contains operating equipment that is, in turn, assigned to different categories. The category defines the zone in which the operating equipment can be used.

Various Flender couplings are available for the **highlighted variants**. Equipment is not available in categories 1 and M1.

PRODUCT	N-EUPEX	N-EUPEX DS	RUPEX RWN/RWS	N-BIPEX	ELPEX-S	N-ARPEX ARN	ARPEX ARP	ARPEX ARS/ARC	ARPEX ARW	ARPEX ART	FLUDEX	ZAPEX ZW	ZAPEX ZN
DESCRIPTION	universally applicable, damping shaft coupling to compensate for shaft misalignment	universally applicable, damping shaft coupling to compensate for shaft misalignment	damping, fail-safe pin and bush coupling for medium to high torques	universally applicable, damping shaft coupling to compensate for shaft misalignment	highly flexible rubber-disk coupling to connect machines with highly nonuniform torque characteristics	backlash-free, torsionally rigid all-steel multi-plate coupling	backlash-free, torsionally rigid all-steel multi-plate coupling	backlash-free, torsionally rigid all-steel multi-plate coupling	backlash-free, torsionally rigid all-steel multi-plate coupling	backlash-free, torsionally rigid all-steel multi-plate coupling for high-speed applications	hydrodynamic fluid coupling	double-jointed gear coupling	double-jointed gear coupling
NOMINAL TORQUE	T _{RN} → 19 Nm ... 62,000 Nm	T _{RN} → 19 Nm ... 21,200 Nm	T _{RN} → 200 Nm ... 1,300,000 Nm (larger couplings available on request)	T _{RN} → 12 Nm ... 4,650 Nm	T _{RN} → 330 Nm ... 63,000 Nm	T _{RN} → 350 Nm ... 2,000,000 Nm	T _{RN} → 100 Nm ... 17,000 Nm	T _{RN} → 100 Nm ... 1,450,000 Nm	T _{RN} → 92 Nm ... 80,000 Nm	T _{RN} → 1,000 Nm ... 588,500 Nm	nominal power 1.2 kW ... 2,500 kW	T _{RN} → 1,020 Nm ... 7,200,000 Nm	T _{RN} → 1,020 Nm ... 162,500 Nm
ATEX LABELING	a) for standard and low temperatures	II 2G Ex h IIC T6...T4 GB X II 2D Ex h IIIC T85°C...110°C Db X I M2 Ex h Mb X	II 2G Ex h IIB T6...T4 GB X II 2D Ex h IIIC T85°C...110°C Db X I M2 Ex h Mb X	II 2G Ex h IIB T6...T4 GB X II 2D Ex h IIIC T85°C...120°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T4...T3 GB X II 2D Ex h IIIC T120°C...160°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T6...T2 GB X II 2D Ex h IIIC T85°C...250°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T6...T2 GB X II 2D Ex h IIIC T85°C...250°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T6...T2 GB X II 2D Ex h IIIC T85°C...250°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T6...T2 GB X II 2D Ex h IIIC T85°C...250°C Db X I M2 Ex h Mb X	II 2G Ex h IIB T3 GB X II 2D Ex h IIIC T160°C Db X I M2 Ex h Mb X	II 2G Ex h IIB T3 GB X II 2D Ex h IIIC T160°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T6...T5 GB X II 2D Ex h IIIC T85°C...100°C Db X I M2 Ex h Mb X	II 2G Ex h IIC T6...T5 GB X II 2D Ex h IIIC T85°C...100°C Db X I M2 Ex h Mb X

EQUIPMENT GROUP I (UNDERGROUND OPERATIONS AND MINES)	
EQUIPMENT CATEGORY	M1: very high degree of safety
LEVEL OF RISK	hazard exists continuously, for long periods and frequently
SUFFICIENT SAFETY	through 2 protective measures / for 2 faults

EQUIPMENT GROUP II (OTHER POTENTIALLY EXPLOSIVE AREAS)	
EQUIPMENT CATEGORY	1: very high degree of safety
LEVEL OF RISK	hazard exists continuously, for long periods and frequently
SUFFICIENT SAFETY	through 2 protective measures / for 2 faults

EQUIPMENT GROUP I (UNDERGROUND OPERATIONS AND MINES)	
EQUIPMENT CATEGORY	M2: high degree of safety
LEVEL OF RISK	hazard exists occasionally
SUFFICIENT SAFETY	must be de-energized in the event of a potentially explosive atmosphere

EQUIPMENT GROUP II (OTHER POTENTIALLY EXPLOSIVE AREAS)		
EQUIPMENT CATEGORY	2: high degree of safety	3: normal degree of safety
LEVEL OF RISK	hazard exists occasionally	hazard exists rarely and for a short duration
SUFFICIENT SAFETY	for frequent equipment mal-functions / for 1 fault	for trouble-free operation

EQUIPMENT GROUP I (UNDERGROUND OPERATIONS AND MINES)	
USE IN	zone 0 zone 20
ATMOSPHERE	G (gas) D (dust)

EQUIPMENT GROUP II (OTHER POTENTIALLY EXPLOSIVE AREAS)		
USE IN	zone 1 zone 21 zone 2 zone 22	
ATMOSPHERE	G D G D	