

Voith Turbo Fluid Couplings for use in potentially explosive atmospheres

Equipment group II (other potentially explosive atmospheres)

	Category 1 ¹ Very high level of safety		Category 2 ^{1,2} High level of safety		Category 3 ^{1,2} Normal level of safety	
Adequate safety	based on 2 protective measures / in the event of 2 faults		in the event of frequent equipment malfunctions / involving 1 fault		during normal (problem-free) operation	
Use in	Zone 0	Zone 20	Zone 1	Zone 21	Zone 2	Zone 22
Atmosphere:						
G: Gas	G	D	G	D	G	D
D: Dust						

¹ II (1) G: associated electrical equipment – installation in a safe area

² Voith scope of supply

Equipment group I (mining)

	Category M1 Very high level of safety	Category M2 ³ High level of safety
Adequate safety	based on 2 protective measures / in the event of 2 faults	must be switched off when potentially explosive atmospheres exist

³ Voith scope of supply

Types of protection for Voith fluid couplings

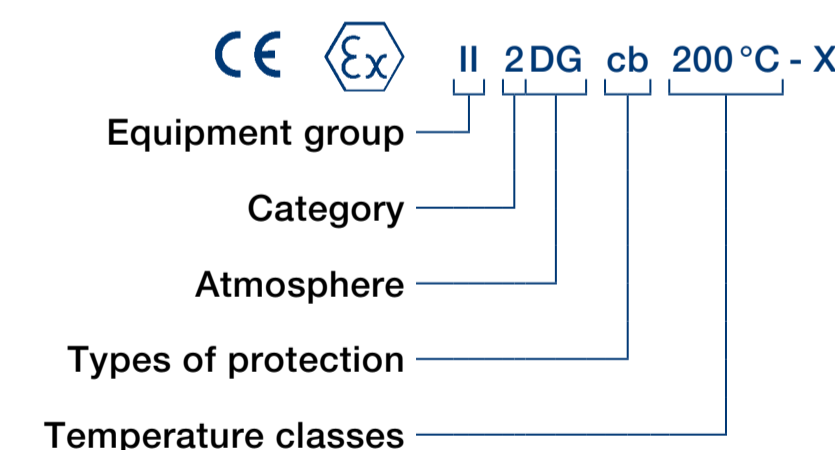
	Schematic representation	Primary application	Standard
i ⁴ Intrinsic safety		Measurement and control technology, communications technology, sensors, actuators	EN 60079-11
c Constructional safety		Nonelectrical equipment	EN 13463-5
b Control of ignition sources		Nonelectrical equipment	EN 13463-6

⁴ ia: use in Zone 0, 1, 2

ib: use in Zone 1, 2

[EEx ib]: associated electrical equipment – installation in a safe area

Marking of Voith Turbo coupling



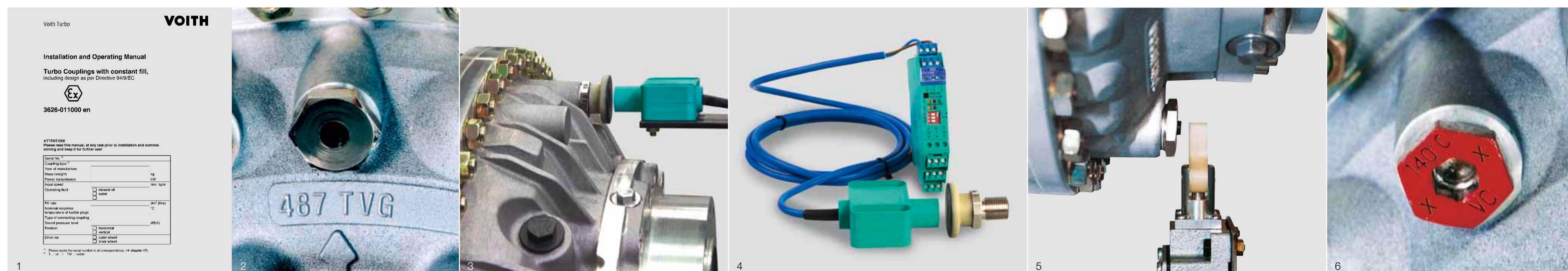
Temperature classes – explosion groups for gases and vapours

Explosion groups	Temperature classes CENELEC IEC USA (NEC 505) ⁵			
	T1 (450 °C ⁶)	T2 (300 °C ⁶)	T3 (200 °C ⁶)	T4 (135 °C ⁶)
I	Methane	Ethyl alcohol	Gasolines	Acetaldehyde
II A	Acetone Ethane Ethyl acetate Ammonia Benzene (pure) Acetic acid Carbon monoxide Methane Methanol Propane Toluene	I-Amyl acetate n-Butane n-Butyl alcohol	Diesel fuel Aviation fuel Heating oils n-Hexane	Ethyl ether
II B	Town / city gas (coal gas)	Ethylene		
II C	Hydrogen	Acetylene		

⁵ T5 (100 °C), T6 (85 °C)
⁶ Maximum permissible surface temperature

Temperature classes – ignition and smouldering temperature of dusts

Source: HVBG BIA Report 13/97	Ignition temperature / dust	Glow temperature / dust	Maximum permissible surface temperature / Voith fluid coupling
Wood, wood fibers, paper, cellulose	400–460 °C	280–335 °C	200 °C
Barley	380–430 °C	280–340 °C	200 °C
Corn / maize	380–410 °C	310–490 °C	230 °C
Wheat	380–490 °C	280–310 °C	200 °C
Malt	380–460 °C	310–330 °C	230 °C
Sugar	310–460 °C	420–460 °C	200 °C
Rice	370 °C	290 °C	210 °C
Coke	470 °C	330 °C	250 °C
Aluminum	560–820 °C	280–450 °C	200 °C
Iron / phosphorus	430 °C	340 °C	260 °C
Sulfur	280 °C	280 °C	180 °C



1 Operating instructions

2 Level check with sight glass

3+4 Electrical Components to limit the temperature

BTS Ex CE Ex II 2G EEx ia IIC T6 (gas)

CE Ex II 2D Ex iaD 20 T108 °C (dust)

5 Optional mechanical thermal switch

MTS CE Ex II 2G EEx d IIC T6 (gas)

CE Ex II 2D IP65 T80 °C (dust)

6 ATEX fusible plug SSS-X with fast response time

Response temperature Color used

95 °C galvanized

110 °C yellow

125 °C brown

140 °C red

160 °C green

180 °C blue

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