

**ETRA**

**Fasteners for  
Pressure Equipments**



## Pressure Equipment Directive (PED)

The PED (Pressure Equipment Directive) is an EU directive 2014/68/EU. The purpose of the directive has been to harmonize the regulations of EU member states and is one of many harmonization directives concerning the free movement of goods. The aim is, of course, also to ensure the safety of pressure equipment such as tanks, pipelines, boilers, and valves.

The PED defines safety requirements for pressure equipment with a permissible pressure of PS over 0.5 bar.

### The harmonized standards for pressure equipment - requirements for fasteners:

EN 1515-4: Flanges and their joints Part 4 - requirements for bolts and nuts

EN 13445: Unfired pressure vessels Part 2 - materials including fasteners

EN 13480: Metallic industrial piping Part 2 - materials including fasteners

These refer to the standard EN 10269. By selecting the material for fasteners from table 4 of this standard, the manufacturer of the pressure equipment can justify the use according to harmonized standards.

The following requirements have been set for fasteners for pressure equipment:

- Elongation A must be over 14%
- Material certificate EN 10204 3.1
- Absorbed Impact energy over 27J at the lowest operating temperature (ISO V)

### Hex bolt + nut 25CrMo4+QT EN 10269

25CrMo4+ QT (1.7218) hex bolts and nuts meet all PED requirements and are suitable for all pressure classes. The material is compatible with EN 10269 requirements and have good mechanical properties.

- Operating temperature -60°C to +500°C
- Manufacturer has PED certificate
- Certificate EN 10204 3.1
- Material symbol KG and manufacturer's mark.

### Extra stocks and offers PED fasteners:

- Plain (St) and hot-dip galvanized (HDG) 25CrMo4+QT bolts and nuts
- Threaded rods and nuts 21CrMoV57+QT EN 10269
- DIN 2510L studs and DIN 2510NF nuts 21CrMoV57+QT EN 10269
- 42CrMo4+QT EN 10269 threaded rods, studs, and nuts
- Bumax 88 products
- ASTM / ASME materials e.g., A193-B7, A320-L7, A194-2H

## Preloading force and tightening torque for hex bolts (ISO 4017, ISO 4014) and nuts (ISO 4032), made from material 25CrMo4+ QT (1.7218) EN 10269

Rm ≥ 600Mpa, Rp0.2 ≥ 440 Mpa

Dimension	P pitch	Preloading force kN			Tightening torque max (Nm) utilisation of the minimum yield strength of 90 %		
		0,1	0,12	0,14	0,1	0,12	0,14
M12	1,75	30,1	29,4	28,6	49,8	56,7	63,0
M16	2	56,6	55,3	53,9	122	139,3	155,5
M20	2,5	88,6	86,5	84,2	239,1	273,2	304,9
M24	3	127,6	124,5	121,3	412	470,8	525,4
M27	3	167,3	163,5	159,3	606,1	694,9	777,7
M30	3,5	203,7	198,9	193,9	825	944,7	1056,2
M33	3,5	253,3	247,5	241,3	1112,6	1277	1430,4
M36	4	297,6	290,7	283,4	1433,1	1642,9	1838,5
M39	4	356,9	348,8	340,1	1849,6		2381,5



Explore Etra's selection of hex bolts  
ISO 4014/4017 + ISO 4032 25CrMo4 + QT EN 10269 here



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