

# DIN EN 10222-1:2017-06 (E)

## Steel forgings for pressure purposes - Part 1: General requirements for open die forgings

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
1	Scope .....	5
2	Normative references .....	5
3	Terms and definitions .....	6
4	Classification and designation .....	7
4.1	Classification .....	7
4.2	Designation .....	7
5	Information to be supplied by the purchaser .....	7
5.1	Mandatory information .....	7
5.2	Options .....	7
6	Requirements .....	8
6.1	Steelmaking .....	8
6.2	Manufacture of the product .....	8
6.2.1	Hot working .....	8
6.2.2	Forging reduction .....	8
6.3	Heat treatment .....	9
6.3.1	General .....	9
6.3.2	Simulated post-weld heat treatment of samples .....	9
6.4	Chemical composition .....	9
6.4.1	Cast analysis .....	9
6.4.2	Product analysis .....	9
6.5	Mechanical properties .....	10
6.6	Weldability .....	10
6.7	Surface condition .....	10
6.7.1	General .....	10
6.7.2	Removal of surface defects .....	10
6.7.3	Verification of the surface condition .....	10
6.8	Internal soundness .....	11
6.9	Dimensions, shape, tolerances and nominal mass .....	11
7	Inspection .....	11
7.1	Types of inspection and inspection documents .....	11
7.2	Tests to be carried out .....	12
8	Sampling .....	13
8.1	Selection of samples .....	13
8.1.1	General .....	13
8.1.2	Separate samples or additional forging .....	13
8.1.3	Forgings up to and including 1 000 kg mass (5 m in length) .....	13
8.1.4	Forgings from 1 000 kg up to and including 4 000 kg mass (5 m in length) .....	13
8.1.5	Forgings over 4000 kg or greater than 5 m in length (any mass) .....	14
8.1.6	Forgings for closed hollow vessels .....	14
8.2	Preparation of samples and test pieces .....	14
9	Test methods .....	15

9.1	General .....	15
9.2	Chemical analysis .....	15
9.3	Tensile test at room temperature .....	15
9.4	Tensile test at elevated temperatures .....	16
9.5	Impact test .....	16
9.6	Magnetic particle testing .....	16
9.7	Penetrant testing .....	16
9.8	Ultrasonic testing .....	17
9.9	Resistance to intergranular corrosion .....	17
9.10	Hydrostatic testing .....	17
9.11	Dimensional measurement .....	17
9.12	Visual testing .....	17
10	Retests .....	17
10.1	General .....	17
10.2	Re-heat treatment .....	17
11	Marking .....	17
Annex A (normative) Ruling section and equivalent thickness .....		19
A.1	General .....	19
A.2	Definitions .....	19
A.3	Determination of the equivalent thickness .....	19
Annex B (informative) Example of the location of test pieces .....		21
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU .....		23
Bibliography .....		24