

Hose fittings with clamp units —

Part 8: Symmetrical half coupling (Guillemin system)

The European Standard EN 14420-8:2004 has the status of a
British Standard

ICS 23.040.70

National foreword

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Hose fittings with clamp units - Part 8: Symmetrical half coupling
(Guillemin system)

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Demi raccords symétriques (système Guillemin)

Schlaucharmaturen mit Klemmfassungen - Teil 8:
Symmetrische Kupplungen (System Guillemin)

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EN 14420-8:2004 (E)

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Foreword

This document (EN 14420-8:2004) has been prepared by Technical Committee CEN/TC 218 "Rubber and plastics hoses and hose assemblies", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

EN 14420 consists at the time of publication of the following parts:

EN 14420-1, *Hose fittings with clamp units — Part 1: Requirements, survey, designation and testing*

EN 14420-2, *Hose fittings with clamp units — Part 2: Hose side parts of hose tail*

EN 14420-3, *Hose fittings with clamp units — Part 3: Clamp units, bolted or pinned*

EN 14420-4, *Hose fittings with clamp units — Part 4: Flange connections*

EN 14420-5, *Hose fittings with clamp units — Part 5: Threaded connections*

EN 14420-6, *Hose fittings with clamp units — Part 6: TW tank truck couplings*

EN 14420-7, *Hose fittings with clamp units — Part 7: Cam locking couplings*

EN 14420-8, *Hose fittings with clamp units — Part 8: Symmetrical half coupling (Guillemin system)*

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EN 14420-8:2004 (E)**1 Scope**

This document applies to hose fittings with symmetrical half couplings (Guillemin system), with mobile locking ring, for hose assemblies with a maximum working pressure of up to 25 bar, with hose tails according to EN 14420-2 and clamp units according to EN 14420-3. Couplings in accordance with this document serve as link between hoses and connections to transport liquids, solids (e.g. powders, granules) except steam and liquid gas. It specifies dimensions, types of connections, quality of materials, marking requirements and testing requirements. The working temperature range is $-20\text{ }^{\circ}\text{C}$ up to $+65\text{ }^{\circ}\text{C}$.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- EN 1706, *Aluminium and aluminium alloys — Castings — Chemical composition and mechanical properties*
- EN 1982, *Copper and copper alloys — Ingots and castings*
- EN 10083-2, *Quenched and tempered steels — Part 2: Technical delivery conditions for unalloyed steels*
- EN 10088-1, *Stainless steels — Part 1: List of stainless steels*
- EN 10213-4, *Technical delivery conditions for steel castings for pressure purposes — Part 4: Austenitic and austenitic-ferritic steel grades*
- EN 14420-1, *Hose fittings with clamp units — Part 1: Requirements, survey, designation and testing*
- EN 14420-2, *Hose fittings with clamp units — Part 2: Hose side parts of hose tail*
- EN 14420-3, *Hose fittings with clamp units — Part 3: Clamp units, bolted or pinned*
- EN 14420-4, *Hose fittings with clamp units — Part 4: Flange connections*
- EN 14420-5, *Hose fittings with clamp units — Part 5: Threaded connections*
- EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*
- ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (Hardness between 10 IRHD and 100 IRHD)*
- EN 22768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*
- EN 22768-2, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications*

3 Requirements**3.1 Pressures**

Symmetrical half-couplings (Guillemin system), with mobile locking-ring, shall resist to the following pressures:

- Maximum working pressure = 10 bar
- Test pressure = 30 bar
- Minimum burst pressure = 50 bar

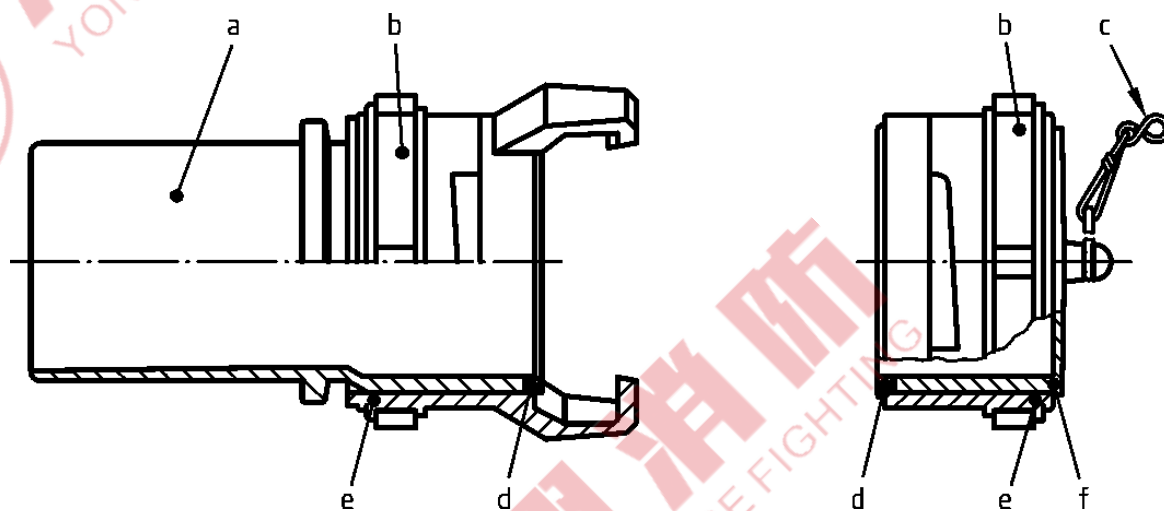
NOTE 1 MPa = 10 bar.

3.2 Temperatures

Range of working temperatures of couplings equipped with NBR rubber gasket: - 20 °C to + 65 °C. Outside of these limits, consult the manufacturer.

4 Components

Shown as samples are: a coupling with hose tail — Part SGD and a plug — Part SGB.



Key

- a Hose tail
- b Locking ring
- c Chain
- d Gasket
- e Retainer ring
- f Body of plug

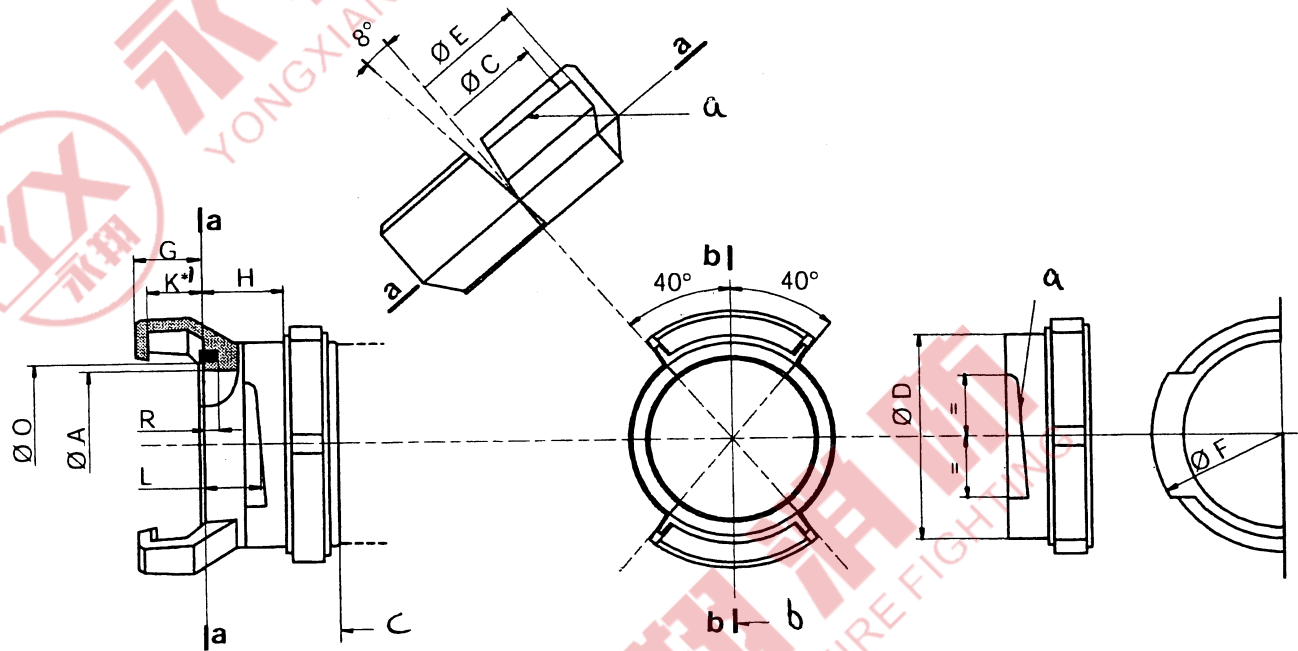
Figure 1 — Coupling with hose tail — Part SGD and plug — Part SGB

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5 Dimensions

Details, which are not fixed, shall be chosen suitably by the manufacturer.

For gauges see Annex A.



Key

- a Helix right pitch P
- b Medial plan
- c According to EN 14420-4

For H and G see Table 1.

*) K is measured in the plan BB

Figure 2 — General dimensions

Table 1 — General dimensions

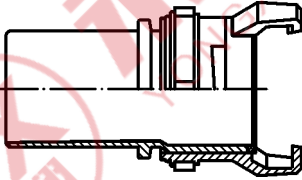
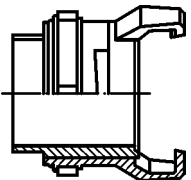
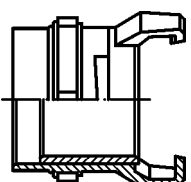
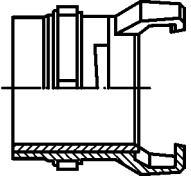
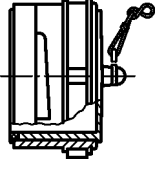
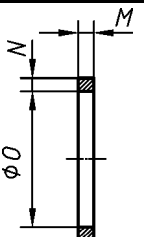
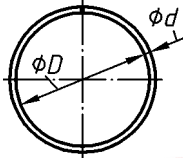
Dimensions in millimetres

DN	<i>A</i>		<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>		<i>H</i>	<i>K</i>	<i>L</i>	<i>O</i>	<i>P</i>	<i>R</i>
							max.	min.						
20	19	$+1$ $+0$	32	31	38	36,5	14,5	14,5	10 ± 0,1	8,7 ± 0,1	23	6	2,5	
25	23	$+2$ $+0$	37,5	36,5	44	42,5	15	15	10 ± 0,1	8,7 ± 0,1	27,25	6	3	
32	27,5	$+2,5$ $+0$	42,5	41,5	50	48	15	15	11 ± 0,1	9,7 ± 0,1	32	6	3,5	
40	38	$+2$ $+0$	55	54	63	61	19,5	19,5	14,5 ± 0,1	13,4 ± 0,1	43	8	4	
50	48	$+2$ $+0$	69	68	78	76	24,5	24,5	18,5 ± 0,1	17,4 ± 0,1	54	8	4	
65	62	$+3$ $+0$	84	83	94	92	24	24	17 ± 0,15	16 ± 0,15	69	10	5	
80	78	$+2$ $+0$	103	101	114,5	111,5	28	28	20 ± 0,15	19 ± 0,15	85	10	5	
100	97	$+3$ $+0$	123	121	136	133	30	30	21 ± 0,15	20 ± 0,15	103,5	10	6	

6 Types of connections

Table 2 — Types of connections

Dimensions in millimetres

Figure	Form	Kind of connection	DN	Thread acc. to EN ISO 228-1				
	SGD	Hose tail according to EN 14420-2 Hose tail to be connected with clamps units according to EN 14420-3 Other dimensions see Clause 5	20 25 32 40 50 65 80 100	—				
	SGM	External thread according to EN 14420-5 Other dimensions see Clause 5	20 25 32 40 50 65 80 100	G ¼ B G 1 B G 1 ¼ B G 1 ½ B G 2 B G 2 ½ B G 3 B G 4 B				
	SGF	Internal thread according to EN 14420-5 Flat-sealed with sealing ring. Other dimensions see Clause 5	20 25 32 40 50 65 80 100	G ¼ G 1 G 1 ¼ G 1 ½ G 2 G 2 ½ G 3 G 4				
	SGS	Welding connections To be agreed between purchaser and manufacturer Other dimensions see Clause 5	20 25 32 40 50 65 80 100	—				
	SGB	Plug with chain and "S" hook length 300 mm (min), capable of supporting at least 10 times the weight of the plug. Other dimensions see Clause 5	20 25 32 40 50 65 80 100	—				
Main gasket		Retainer ring						
	DN	Ø O	M	N	DN	Ø D min.	Ø d min.	
Other specifications see Clause 8	20	23	3,5	2,5		20	22	20/10°
	25	27,25	4	3,5		25	30	20/10°
	32	32	4,5	3		32	31	20/10°
	40	43	5	4		40	44	20/10°
	50	54	5	5		50	56	20/10°
	65	69	6	5		65	71	25/10°
	80	85	6	5,5		80	85	30/10°
	100	103,5	7	7		100	108	30/10°

7 Designation

Examples of ordering designations:

- half-coupling with hose tail and collar, nominal size DN 80 made of stainless steel (1.4404):

Half coupling EN 14420-8 — SGD — 80 — 1.4404

- half-coupling with internal thread nominal size DN 50 made of aluminium alloy (EN AC-42100):

Half coupling EN 14420-8 — SGF — 50 — FFG2 — EN AC-42100

8 Materials

8.1 General

Whatever the kind of manufacturing procedure is, the minimum mechanical characteristics shall be equivalent to the mechanical characteristics of investment casting (in case of stainless steel) using the materials specified in this document.

8.2 Coupling components

The quality of the materials constituting the symmetrical half-couplings (Guillemin system) with mobile locking ring, gaskets, retainer rings and chains, shall confer the chemical, mechanical and physical characteristics to provide the service conditions defined in Clause 3.

The most commonly used materials are:

- Bronze: CuSn5Zn5Pb5 material number CC491K according to EN 1982.
- Aluminium alloys: EN AC Si7Mg0,3 material number EN AC-42100 according to EN 1706.
EN AC Si7Mg0,6 material number EN AC-42200 according to EN 1706.
These grades shall be heat treated according to manufacturers specification.
- Stainless steel: X2CrNiMo 17-12-2 material number 1.4404 according to EN 10088-1.
X5CrNiMo 17-12-2 material number 1.4401 according to EN 10088-1.
GX5CrNiMo19-11-2 material number 1.4408 according to EN 10213-4.

Main gaskets:

- Nitrile butadiene Rubber (NBR), IRHD hardness 60 ± 5 according to ISO 48.
- Fluoro rubber (FPM), IRHD hardness 75 ± 5 according to ISO 48.
- Polytetrafluorethylene (PTFE)

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Thread gasket:

Polyurethane (PUR), hydrolytically stable, IRHD hardness $90 \pm 0,5$ according to ISO 48 (e.g. for copper-zinc alloy materials)

Polytetrafluoroethylene (PTFE) (e.g. for stainless steel materials)

Nitrile butadiene rubber (NBR) (e.g. for brass/bronze alloy materials)

Fluoro rubber (FPM)

Ethylene propylene rubber/plastics (EPDM)

Use non-asbestos materials for gaskets.

9 Marking

The body of each half-coupling shall be durably marked on the outside as follows:

- sign of the manufacturer or trademark;
- number of this document; EN 14420-8;
- manufacturers name or trademark;
- nominal size;
- material number.

10 Type approval testing and quality control

Shall be according to EN 14420-1.

Annex A (normative)

Gauge for symmetrical half couplings (Guillemin system)

A.1 General

The gauge in accordance to this document shall be used for checking:

- the dimension between bottom of the seal's groove and the median axis of the helicoidal ramps of jaws as well as the inside diameters of the jaws;
- The dimension between bottom of the seal's groove and the median axis of the helicoidal ramps of mobile locking ring as well as the outside diameter of the coupling.

A.2 Dimensions, designation

A.2.1 General

Details not specified in this document are to be chosen as appropriate. Only the dimensions given in Tables A.1 and A.2 shall be complied with.

Tolerances shall be according to EN 22768-1 and EN 22768-2.

A.2.2 Gauge A

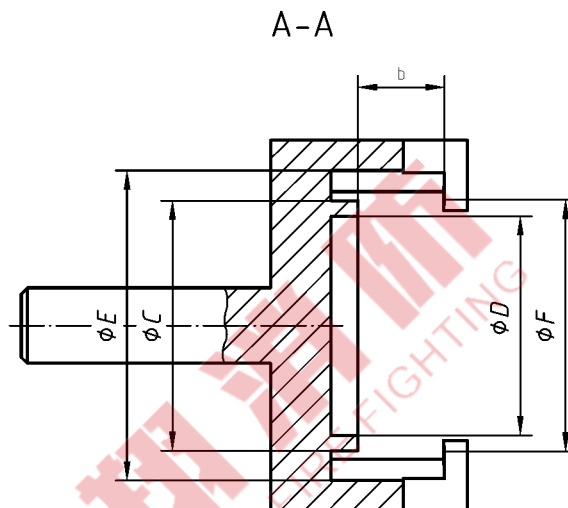
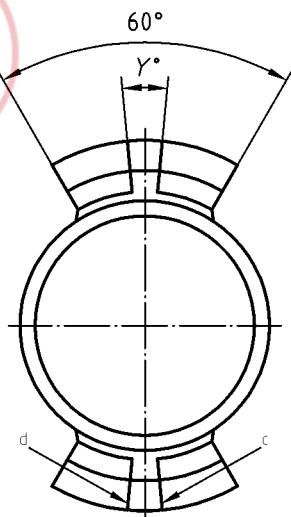
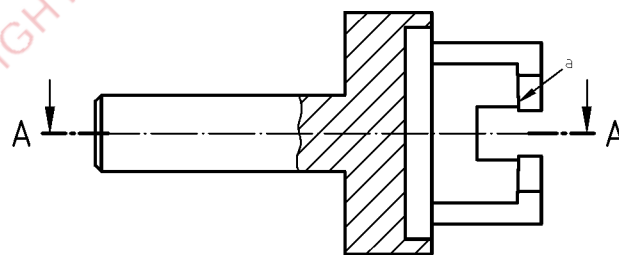
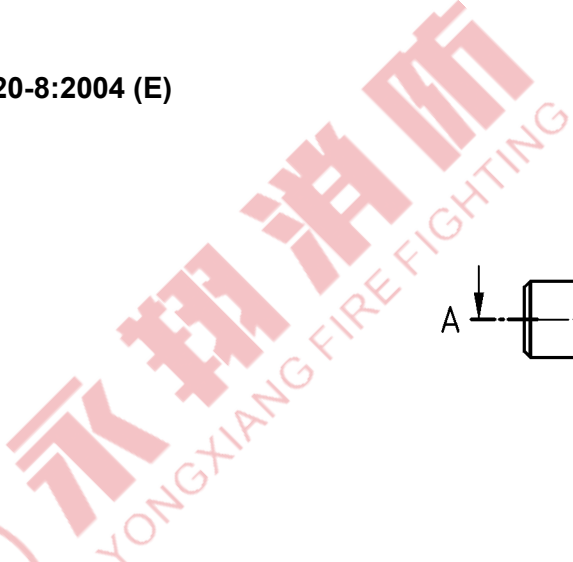
For checking the dimension between bottom of the seal's groove and the median axis of the helicoidal ramps of jaws as well as the inside diameters of the jaws.

Designation of a Gauge A for a Guillemin coupling size DN 50:

Gauge EN 14420-8 — A — 50

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Key

- a Helix pitch P
- b X in centre of ramp
- c maxi
- d mini

Figure A.1 — Gauge A

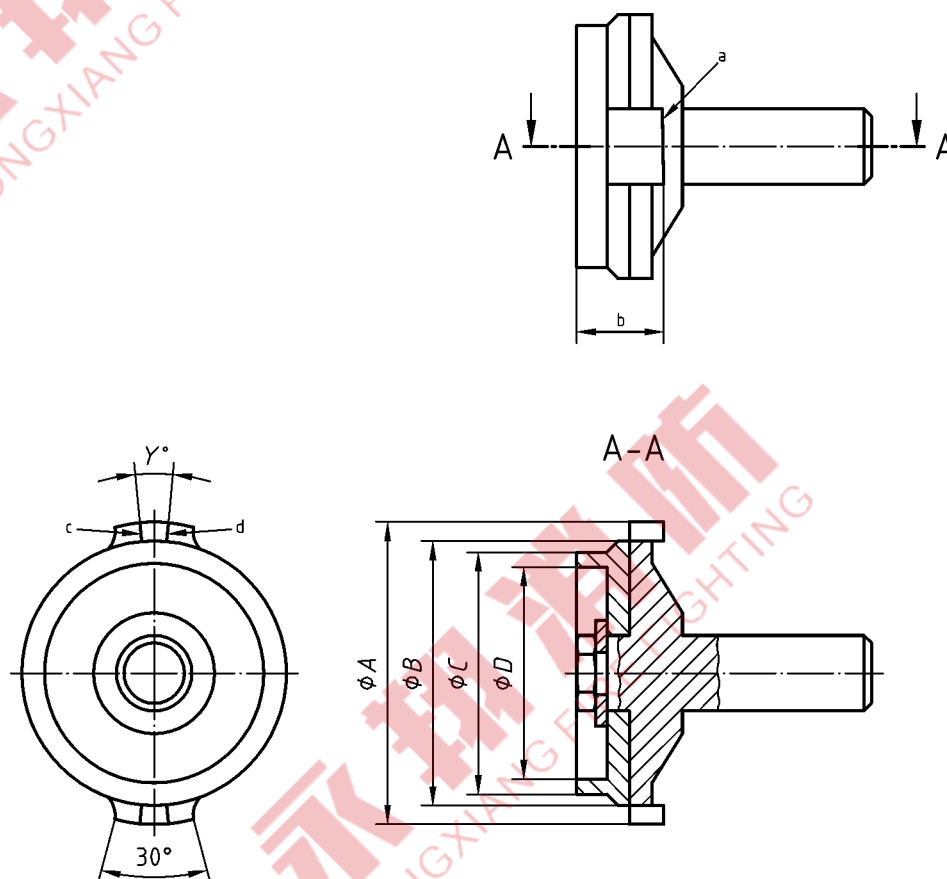
Table A.1 — Dimensions for Gauge A

DN	X mm	Y°	A mm	B mm	C mm	D mm	P mm
20	12,5	12	37,5	32	27,7	23,3	6
25	13	12	43,5	37,5	33,95	27,55	6
32	14,5	12	49,5	42,5	37,7	32,3	6
40	18,5	9	62,5	55	50,7	43,4	8
50	22,5	9	77,5	69	63,7	54,3	8
65	22	10,8	93	84	78,5	69,5	10
80	25	10,8	113,5	103	95,5	85,5	10
100	27	10,8	135	123	117	104	10



A.2.3 Gauge B

For checking the dimension between bottom of the seal's groove and the median axis of the helicoidal ramps of mobile locking ring as well as the outside diameter of the coupling.



Key

- a Helix pitch P
- b X in centre of ramp
- c maxi
- d mini

Figure A.2 — Gauge B

Table A.2 — Dimensions for Gauge B

DN	X mm	Y°	C mm	D mm	E mm	F mm	P mm
20	6,2	12	27,7	23,3	38	31,7	6
25	5,5	12	33,95	27,55	44	37,2	6
32	6,2	12	37,7	32,3	50	42,2	6
40	9,4	9	50,7	43,3	63	54,7	8
50	13,4	9	63,7	54,3	78	68,7	8
65	11	10,8	78,5	69,5	94	83,5	10
80	14	10,8	95,5	85,8	114,5	102,5	10
100	14	10,8	117	104	136	122,5	10

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A.3 Material

Gauge body: Material number 1.0601 — Symbol C 60, or equivalent in mechanical resistance according to EN 10083-2.

Heat treated and surface protected.

Bolt: At the discretion of the manufacturer.



Bibliography

- [1] EN ISO 4957, *Tool steels (ISO 4957:1999)*
- [2] EN ISO 8330, *Rubber and plastics hoses and hose assemblies – Vocabulary (ISO 8330:1998)*

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