


Particular Material Appraisal Domex 420MCD-ALV according to SSAB specification E4.97LGW.06.0101	Date: 2006-03-13 Rev: 1 Page: 1 (3)	
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This PMA is established in accordance with the procedure specified in Directive 97/23/EC (AFS 1999:4). The material described is not included in a European Harmonized Standard or covered by a European Material Approval.

1 Material specification

E4.97LGW.06.0101 rev 1.0 dated 2006-02-15

2 Material name

Domex 420MCD-ALV

3 Product form/Dimensions according to Specification

Sheet/Thickness 2,0-7,0 mm.

4 Scope

This PMA specifies the conditions under which Domex 420MCD-ALV (produced by SSAB Tunnbränt AB, Sweden) can be used as base material for the production of spirally welded steel pipes for pressure purposes under directive 97/23/EC (PED) for equipment classified into one of the Categories I, II, III or IV. In addition to the requirements in the specification a PMA can inflict limitations and supplementary requirements, which has to be taken into account when ordering the material. The limitations and supplementary requirements are given under 10.

5 References

E4.97LGW.06.0101 rev 1.0 dated 2006-02-15
 Directive 97/23/EC
 EN 10204:1991
 EN 10204:2004
 ISO 9002
 CR ISO 15608:2000

6 Requirements according to E4.97LGW.06.0101

Properties given under 6 are an extract from E4.97LGW.06.0101 edition 1.0

6.1 Delivery conditions (heat treatment)


Hot-rolled.

6.2 Type of manufacture (Steel making process)

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6.3 Deoxidisation

Killed.

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6.4 Chemical composition

Cast analysis

[%]	C	Si	Mn	P	S	Al	N	Cr	Cu	Mo	Nb
min	0,05	-	0,50	-	-	0,015	-	-	-	-	0,030
max	0,10	0,03	1,50	0,025	0,010	0,07	0,0104	0,104	0,104	0,054	0,090
[%]	Ni	Ti	V	B							
min	-	-	-	-							
max	0,104	0,150	0,200	0,0010							

Si+P < 0,04 % ; Nb+V+Ti < 0,22 %

6.5 Mechanical and technological properties

6.5.1 Tensile properties at room temperature

Transverse direction

Thickness [mm]	ReH [MPa] Min	Rm [MPa]	A5 [%] min
2,0-7,0	420	480-620	20*

* for thicknesses < 3,0 mm A₈₀ > 16 %

6.5.2 Impact properties

The following impact properties in transverse direction (on specimen geometry 5x10 mm) are specified for this steel:

Temperature [°C]	KVT [J] min
-20	14*

*) Mean value of three test pieces. One individual value may be below the specified value, provided that it is not less than 10 Joule.

6.5.3 Elevated temperature properties

The following yield strength values are specified at elevated temperature.

Temperature [°C]	Rp0,2 [MPa] min
50	343
100	323

6.5.4 Creep rupture and 1% creep limit values


N.A.

7 Verification testing, inspection and marking

According to E4.97LGW.06.0101 rev 1.0

8 Welding

Domex 420MCD-ALV belongs to material group 2.1 according to CR ISO 15608.

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9 Qualification of material manufacturer and inspection documents

Certificates or test reports issued by a material manufacturer can be accepted under the following conditions:

- a) The material manufacturer must hold an appropriate quality-assurance system (of at least ISO 9002), certified by a competent body established within the European Community and having undergone a specific assessment for materials. (See guidelines WGP 7/2 and 7/16)
- b) The material manufacturer shall (when using EN 10204:1991), in the certificate or in a separate document, verify that the delivery meets all requirements of this specification. (See guideline WGP 7/20)
- c) For main pressure-bearing parts of equipments in categories II, III and IV, the inspection document shall take the form of a certificate of specific product control.


If the material manufacturer does not fulfil the requirements given under a) specific measures must be taken. E.g. through direct inspection by a competent independent third party (notified body or local inspection body). This results in the issue of a certificate type 3.2 according to EN 10204:2004 (or 3.1.C alt. 3.2. according to EN 10204:1991).

10 Limitations and supplementary requirements

Restrictions and supplementary requirements specified below are given in order to comply with the requirements of directive 97/23/EC (PED).

- Domex 420MCD-ALV, produced by SSAB Tunnpå AB, is intended for use as a base material for the production of spirally welded pipes made by Alvenius AB, Sweden.
- Alvenius AB shall have procedures and personnel for welding and testing qualified according to PED Annex I Section 3. (See also WGP Guideline 7/19 and 7/25).
- The lowest accepted material temperature is -20 °C.
- The highest accepted material temperature is 100 °C.
- Requirements for the material manufacturer and inspection documents are given under 9.
- The material is to be marked to ensure full traceability.
- Values given under 6.5 are accepted as design values.

Manufacturer: Alvenius AB, Eskilstuna	Type of product: Base material for production of spirally welded pipes
PMA Issued by: Bo Lindblad, Inspecta Sweden AB (NoBo no. 0409)	

<p style="text-align: center;">Particular Material Appraisal</p> <p style="text-align: center;">Domex 240 YP D-ALV according to Dx 240 YPD-ALV-14 version 1.4</p>	<p>Date: 2004-07-08</p> <p>Rev: 1</p> <p>Page: 1 (3)</p>	
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This PMA is established in accordance with the procedure specified in Directive 97/23/EC (AFS 1999:4). The material described is not included in a European Harmonized Standard or covered by a European Material Approval.

1 Material specification

Dx 240 YPD-ALV-14 version 1.4

2 Material name/number

Domex 240 YP D-ALV

3 Product form/Dimensions according to Specification

Sheet/Thickness 2,0-7,0 mm.

4 Scope

This PMA specifies the conditions under which Domex 240 YP D-ALV (produced by SSAB Tunnpå AB, Sweden) can be used as base material for the production of longitudinally welded steel pipes for pressure purposes under directive 97/23/EC (PED) for equipment classified into one of the Categories I, II, III or IV. In addition to the requirements in the specification a PMA can inflict limitations and supplementary requirements, which has to be taken into account when ordering the material. The limitations and supplementary requirements are given under 10.

5 References

Dx 240 YPD-ALV-14 version 1.4:2004-03-02
 Directive 97/23/EC
 EN 10204:1991
 ISO 9002
 CR ISO 15608:2000

6 Requirements according to Dx 240 YPD-ALV-14

Properties given under 6 are an extract from Dx 240 YPD-ALV-14 version 1.4.

6.1 Delivery conditions (heat treatment)

Hot-rolled.

6.2 Type of manufacture (Steel making process)

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6.3 Deoxidisation

Killed.

Particular Material Appraisal

Domex 240 YP D-ALV according to
Dx 240 YPD-ALV-14 version 1.4

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6.4 Chemical composition

Cast analysis

[%]	C	Si	Mn	P	S	Al	N	Cr	Cu	Mo	Nb
min	0,050	-	0,500	-	-	0,020	-	-	-	-	-
max	0,090	0,030	0,750	0,030	0,025	0,080	0,0094	0,104	0,104	0,054	0,004
[%]	Ni	Ti	V	B							
min	-	-	-	-							
max	0,104	0,010	0,014	0,0005							

Si+P < 0,04 %.

6.5 Mechanical and technological properties

6.5.1 Tensile properties at room temperature

Transverse direction

Thickness [mm]	ReH [MPa]	Rm [MPa]	A5 [%] min
2,0-7,0	240-390	360-460	28

6.5.2 Impact properties

The following impact properties in transverse direction (on specimen geometry 5x10 mm) are specified for this steel:

Temperature [°C]	KVT [J] min
-20	14*

*) Mean value from three test pieces.

6.5.3 Elevated temperature properties

The following yield strength values are specified at elevated temperature.

Temperature [°C]	Rp0,2 [MPa] min
50	227
100	214
150	198

6.5.4 Creep rupture and 1% creep limit values


N.A.

7 Verification testing, inspection and marking

As per Dx 240 YPD-ALV-14 version 1.4

8 Welding

Domex 240 YP D-ALV belongs to material group 1.1 according to CR ISO 15608.

<p style="text-align: center;">Particular Material Appraisal</p> <p style="text-align: center;">Domex 240 YP D-ALV according to Dx 240 YPD-ALV-14 version 1.4</p>	<p>Date: 2004-07-08</p> <p>Rev: 1</p> <p>Page: 3 (3)</p>	
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9 Qualification of material manufacturer and inspection documents

Certificates or test reports issued by a material manufacturer can be accepted under the following conditions:

- a) The material manufacturer must hold an appropriate quality-assurance system (of at least ISO 9002), certified by a competent body established within the European Community and having undergone a specific assessment for materials. (see guideline WGP 7/16)
- b) The material manufacturer, in the certificate or in a separate document, verifies that the material delivered meets all requirements in this specification. (see guideline WGP 7/20)
- c) For main pressure-bearing parts of equipments in categories II, III and IV, the inspection document shall take the form of a certificate of specific product control.

10 Limitations and supplementary requirements

Restrictions and supplementary requirements specified below are given in order to comply with the requirements of directive 97/23/EC (PED).

- Domex 240 YP D-ALV, produced by SSAB Tunnpå AB, is intended for use as a base material for the production of longitudinally welded pipes made by Alvenius AB, Sweden.
- Alvenius AB shall have procedures and personnel for welding and testing qualified according to PED Annex I Section 3. (See also WGP Guideline 7/19).
- The lowest accepted material temperature is -20 °C.
- The highest accepted material temperature is 150 °C.
- Requirements for the material manufacturer and inspection documents are given under 9.
- The material is to be marked to ensure full traceability.
- Values given under 6.5 are accepted as design values.

<p>Manufacturer: Alvenius AB, Eskilstuna</p>	<p>Type of product: Base material for production of longitudinally welded pipes</p>
<p>PMA Issued by: Bo Lindblad, Det Norske Veritas Inspection AB, Sweden (NoBo no. 0409)</p>	