
**Welding and allied processes —
Classification of geometric imperfections
in metallic materials —**

Part 2:
Welding with pressure

*Soudage et techniques connexes — Classification des défauts
géométriques dans les soudures des matières métalliques —*

Partie 2: Soudage avec pression



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 6520-2:2001

© ISO 2001

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 6520 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6520-2 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 7, *Representation and terms*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

ISO 6520 consists of the following parts, under the general title *Welding and allied processes — Classification of geometric imperfections in metallic materials*:

- *Part 1: Fusion welding*
- *Part 2: Welding with pressure*

Annex A of this part of ISO 6520 is for information only.

Contents	Page
Foreword	v
1 Scope	1
2 Normative references.....	1
3 Classification.....	1
Annex A (informative) Imperfections and welding processes	22
Bibliography.....	25

STANDARDSISO.COM : Click to view the full PDF of ISO 6520-2:2001

Foreword

The text of EN ISO 6520-2:2001 has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

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 June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

STANDARDSISO.COM : Click to view the full PDF of ISO 6520-2:2001

[STANDARDSISO.COM](https://standardsiso.com) : Click to view the full PDF of ISO 6520-2:2007

1 Scope

This European Standard collects and classifies the possible imperfections in welds made with pressure. A uniform designation is specified. Only the type, shape and dimensions of the different imperfections caused by welding with pressure are included. Metallurgical deviations are not taken into account. Imperfections produced other than by the welding operation, for example additional stresses, loads or environmental factors are not covered by this standard.

Information concerning the consequences of the mentioned imperfections and the use of particular structures is not given because this depends on the specific requirements of the joint.

2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN ISO 6520-1 Welding and allied processes - Classification of geometric imperfections in metallic materials - Part 1: Fusion welding (ISO 6520-1:1998)

3 Classification

The imperfections are classified into the following six groups:

- P1 - Cracks
- P2 - Cavities
- P3 - Solid inclusions
- P4 - Lack of fusion
- P5 - Imperfect shape
- P6 - Any other imperfections not included in groups P1 to P5

The letter 'P' stands for welding with pressure.

As regards Table 1 it has to be noted that:

- a) column 1 gives a three figure reference number for each principal imperfection and a four or five figure number for each sub term;
- b) column 2 gives the designation or name of each imperfection in English, French and German;
- c) columns 3 to 5 give the explanations in English, French and German where necessary;

d) column 6 provides, where necessary, illustrations for supplementary explanations.

The numbering system shall follow that used in accordance with EN ISO 6520-1.

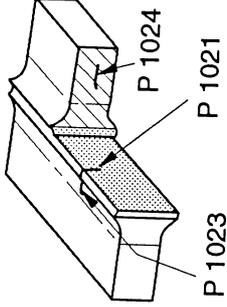
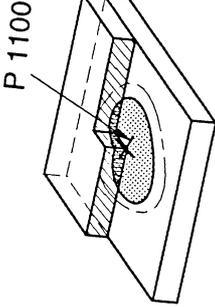
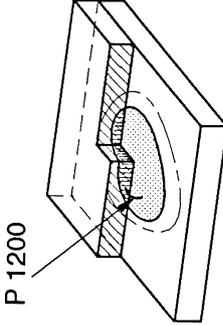
Table A.1 gives guidance on the welding processes where the imperfections listed in this part of EN ISO 6250 may occur.

STANDARDSISO.COM : Click to view the full PDF of ISO 6520-2:2001

Table 1 – Classification

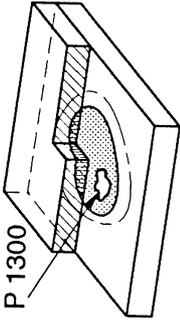
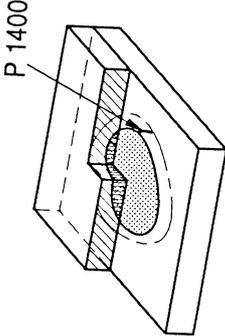
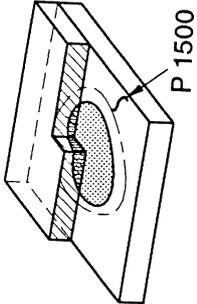
Reference Référence Nummer	Designation Désignation Benennung	Explanation English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
Group No.1 Cracks; Groupe n° 1 Fissures; Gruppe 1 Risse					
P 100	Crack Fissure Riß	A discontinuity produced by a local rupture which can arise from the effect of cooling or stresses.	Discontinuité pouvant se produire en cours de refroidissement ou sous l'effet de contraintes.	Örtliche Werkstofftrennung, die durch Vorgänge beim Abkühlen oder durch Spannungen entstehen kann.	
P 1001	Micro-crack Microfissure Mikroriß	A crack usually only visible under a microscope.	Fissure généralement visible seulement au microscope.	Ein Riß, der üblicherweise nur unter einem Mikroskop sichtbar ist.	
P 101	Longitudinal crack Fissure longitudinale Längsriß	A crack substantially parallel to the axis of the weld. It may can be situated:	Fissure sensiblement parallèle à l'axe de la soudure. Elle peut se situer :	Riß in Richtung der Schweißnaht verlaufend. Er kann liegen:	
P 1011		in the weld,	dans la soudure,	in der Schweißnaht,	
P 1013		in the heat affected zone (HAZ),	dans la zone thermiquement affectée (ZAT),	in der Wärmeeinflußzone (WEZ),	
P 1014		in the unaffected parent metal.	dans le métal de base.	im unbeeinflussten Grundwerkstoff.	

Table 1 – Classification (continued)

Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 102 P 1021 P 1023 P 1024	Transverse crack Fissure transversale Querriß	A crack substantially transverse to the axis of the weld, it may be situated: in the weld, in the HAZ, in the unaffected parent metal.	Fissure sensiblement perpendiculaire à l'axe de la soudure. Elle peut se situer : dans la soudure, dans la ZAT, dans le métal de base.	Riß, quer zur Schweißnaht verlaufend. Er kann liegen: in der Schweißnaht, in der WEZ, im unbeeinflussten Grundwerkstoff.	
P 1100	Star-crack Fissure rayonnante (au centre du noyau) Riß in Linsenmitte	Multiple cracks radiating from a common central point and usually contained within the nugget.	Fissures multiples issues d'un même point, généralement situées dans les limites du noyau.	Riß, vielfach sternförmig von einer Stelle ausgehend.	
P 1200	Crack at the edge of the nugget Fissure au bord du noyau Riß am Linsenrand	Crack, often in the shape of a comma, which can extend into the HAZ.	Fissure, souvent en forme de virgule, se prolongeant jusque dans la ZAT.	Riß, vielfach kommaförmig, u.U. bis in die WEZ verlaufend.	

STANDARDS110.COM Click to buy the full PDF of ISO 6520-2:2001

Table 1 – Classification
(continued)

Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 1300	Crack in the joining plane Fissure dans le plan de joint Riß in der Verbindungsebene	Cracks usually directed to the edge of the nugget.	Fissure généralement orientée vers le bord du noyau.	Riß, üblicherweise zum Linsenrand gerichtet.	
P 1400	Crack in the heat affected zone (HAZ) Fissure dans la zone thermique- ment affectée (ZAT) Riß in der Wärme- einflußzone (WEZ)	see column 2	voir colonne 2	siehe Spalte 2	
P 1500	Crack in the (un- affected) parent metal Fissure dans le métal de base Riß im unbe- einflußten Grundwerkstoff	see column 2	voir colonne 2	siehe Spalte 2	

**Table 1 – Classification
(continued)**

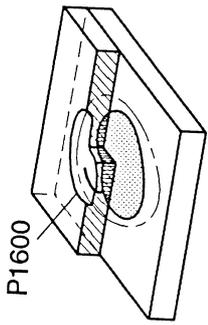
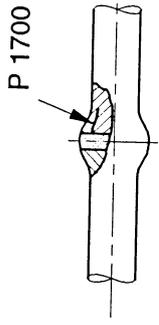
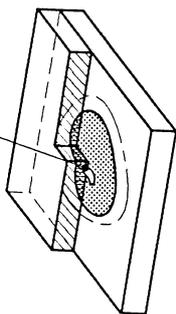
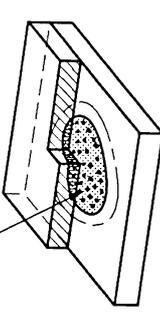
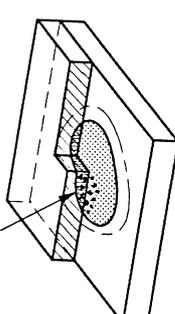
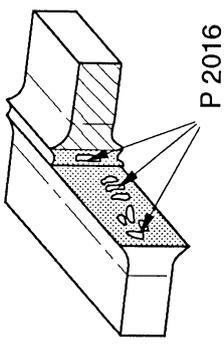
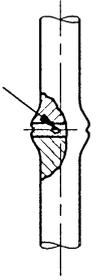
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 1600	Surface breaking crack Fissure débouchante Oberflächenriß	Crack, open at the surface, found in the weld zone.	Fissure située dans la zone fondue et débouchant en surface.	Zur Werkstückoberfläche offener Riß in der Schweiß- zone.	
P 1700	"Hook" crack Fissure en forme de virgule Hakenriß	Crack in the area of the upset metal often starting from inclusions.	Fissure située dans le métal refoulé et souvent issue d'inclusions.	Riß im Bereich des Stauch- wulstes, häufig von Einschlüssen ausgehend.	
Group No.2 Cavities; Groupe n° 2 Cavités; Gruppe 2 Hohlräume					
P 200	Cavity Cavité Hohlraum	see column 2	voir colonne 2	siehe Spalte 2	
P 201	Gas cavity Soufflure Gaseinschluß	A cavity formed by entrapped gas in the nugget, in the weld or in the heat affected zone (HAZ).	Cavité formée par du (ou des) gaz emprisonné(s) dans le noyau, située dans la soudure ou dans la zone thermiquement affectée (ZAT).	Gasgefüllter Hohlraum in der Linse, in der Schweißnaht oder in der Wärmeinflußzone (WEZ).	

Table 1 – Classification
(continued)

Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 2011	Gas pore Soufflure sphéroïdale Gaspore	A gas cavity of essentially spherical form.	Soufflure de forme sensiblement sphérique.	Kugelförmiger Gaseinschluß.	
P 2012	Uniformly distributed porosity Soufflures sphéroïdales répartis gleichmäßig verteilte Porosität	A number of gas pores distributed in a substantially uniform manner throughout the weld metal.	Soufflures sphéroïdales régulièrement distribués dans le métal fondu.	Zahlreiche, gleichmäßig verteilte Poren im Schweißgut.	
P 2013	Localized (clustered) porosity Nid de soufflures Porennest	Evenly distributed group of pores.	Groupe de soufflures réparties de manière quelconque.	Örtlich gehäufte Poren.	

**Table 1 – Classification
(continued)**

Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 2016	Worm-hole Soufflure vermicul- aire Schlauchpore	A tubular cavity in the weld metal, generally grouped in clusters and distributed in a herringbone formation.	Soufflure en forme de galerie de ver dans le métal fondu. Ces soufflures sont généralement groupées et disposées en arête de poisson.	Ein röhrenförmiger Hohlraum im Schweißgut. Schlauchporen sind im allgemeinen zu Nestern gruppiert und wie Krähfüße verteilt.	
P 202	Shrinkage cavity Retassure Lunker	A cavity produced in the weld metal during solidification.	Cavité due au retrait du métal pendant la solidification.	Hohlraum infolge Erstarrungsschwindung.	
P 203	Forging cavity Retassure de forgeage Schmiedelunker	A cavity produced by non-closure of craters on the interfaces; it can be accentuated by shrinkage.	Cavité due à des creux aux interfaces. Ces cavités peuvent être accentuées sous l'effet d'un retrait.	Hohlraum durch Vertiefungen an den Grenzflächen. Er kann durch Schrumpfen verstärkt werden.	

STANDARDS101.COM; Click to view the full PDF on ISO 6520-2:2001

Table 1 – Classification
(continued)

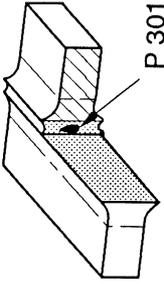
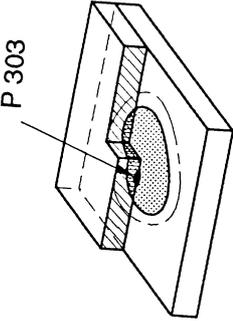
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
Group No. 3 Solid inclusions; Groupe n° 3 Inclusions solides; Gruppe 3 Feste Einschlüsse					
P 300	Solid inclusion Inclusion solide Feststoffeinschluß	Solid foreign substance entrapped in the weld.	Corps solide étranger emprisonné dans la soudure.	Feste Fremdstoffeinlagerung in der Schweißverbindung.	
P 301	Slag inclusion Inclusion de laitier Schlackenein- schluß	Non-metallic inclusions in the weld (isolated or clustered).	Laitier emprisonné dans le métal fondu. Les inclusions de laitier peuvent être isolées ou en nid.	Nichtmetallische Einschlüsse in der Schweißverbindung; einzeln oder gehäuft auftretend.	
P 303	Oxide inclusion Inclusion d'oxyde Oxideinschluß	Thin metallic oxide inclusions in the weld (isolated or clustered).	Fine inclusion d'oxyde métallique dans la soudure. Les inclusions d'oxyde peuvent être isolées ou en nid.	Dünne Einlagerungen von Metalloxiden in der Schweiß- verbindung; einzeln oder gehäuft auftretend.	

Table 1 – Classification (continued)

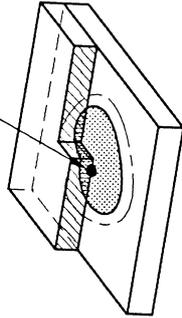
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 304	Metallic inclusion Inclusion métallique Fremdmetallein- schluß	A particle of foreign metal trapped in the weld metal.	Particule de métal étranger emprisonnée dans le métal fondu.	Einlagerung eines Fremdmetall- teilchens im Schweißgut.	
P 306	Inclusion of cast metal Inclusion de métal fondu résiduel Restschmelzenein- schluß	Solidified residual molten material enclosed in the joint including impurities.	Métal fondu résiduel emprisonné, avec des impuretés, dans la soudure.	In der Schweißverbindung ein- geschlossene erstarrte Rest- schmelze mit Verunreini- gungen.	
Group No.4 Lack of fusion; Groupe n° 4 Manque de fusion; Gruppe 4 Bindefehler					
P 400	Lack of fusion Manque de fusion (collage) Bindefehler	Incomplete fusion in the joint.	Fusion incomplète.	Teilweise fehlende Bindung.	
P 401	No weld Absence de fusion Keine Bindung	The faying surfaces are not joined.	Absence de liaison entre les faces à souder.	Die Werkstücke sind nicht miteinander vereinigt.	

Table 1 – Classification
(continued)

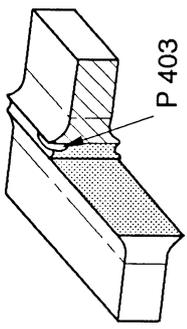
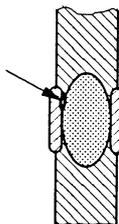
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 403	Insufficient fusion (stuck weld) Fusion incomplète (point collé) Unvollständige Bindung	The faying surfaces are only partly or insufficiently joined.	Liaison partielle ou insuffisante entre les faces à souder.	Die Werkstücke sind nur teilweise oder unzureichend verbunden.	 P 403
P 404	Insufficiently welded foil Manque de liaison du feuillard Unvollständig verbundene Folie	The fusion between the workpieces and the foils is insufficient.	Fusion insuffisante entre la pièce et le feuillard.	Die Bindung zwischen Werkstück und Folie ist unzureichend.	 P 404
Group No.5 Imperfect shape and dimensions; Groupe n° 5 Défauts de forme et défauts dimensionnels; Gruppe 5 Form- und Maßabweichung					
P 500	Imperfect shape Forme défectueuse Formabweichung	Deviation from the required joint shape.	Ecart par rapport à la forme prescrite de la soudure.	Abweichung von der vorgeschriebenen Form der Schweißverbindung.	
P 501	Undercut Caniveau Kerbe	A groove in the surface due to welding.	Sillon formé à la surface de la soudure et dû au soudage.	Durch Schweißen entstandene Vertiefung in der Schweißzone.	 P 501

Table 1 – Classification (continued)

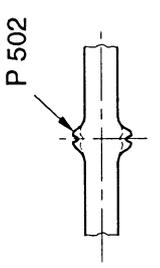
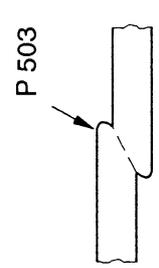
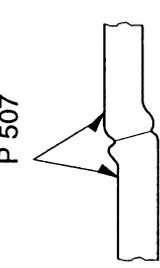
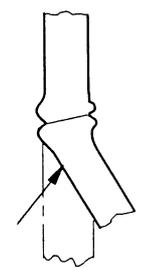
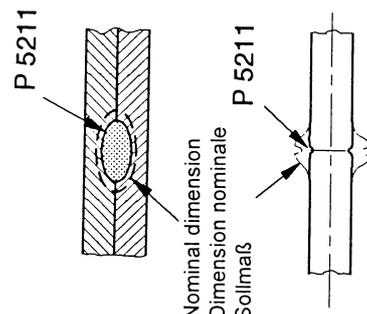
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 502	Excessive upset metal Bourrelet excessif Zu großer Stauchwulst	Upset metal in excess of that specified.	Bourrelet trop important par rapport aux dimensions prescrites.	Stauchwulst überschreitet das vorgesehene Maß.	
P 503	Insufficient set-down Ecrasement insuffisant Zu große Nahtüberhöhung	Thickness at weld is excessive as a result of insufficient set-down in mash seam welding.	En soudage à la molette par écrasement, épaisseur excessive de la soudure.	Nahtüberhöhung unzulässig groß auf Grund ungenügender Rückverformung beim Quetschnahtschweißen.	
P 507	Linear misalignment Défaut d'alignement Kantenversatz	Misalignment between two welded pieces such that whilst their surface planes are parallel they are not at the required level.	Non alignement de deux pièces soudées, se traduisant par une dénivellation, leurs surfaces étant néanmoins parallèles.	Versatz zwischen zwei geschweißten Werkstücken derart, daß ihre Oberflächen zwar parallel, aber nicht in der geforderten gleichen Ebene liegen.	
P 508	Angular misalignment Déformation angulaire Winkelversatz	Misalignment between two welded pieces such that their surface planes are not parallel (or at the intended angle).	Non alignement de deux pièces soudées, se traduisant par la formation d'un angle entre leurs surfaces, ou non respect de l'angle prescrit entre deux pièces soudées.	Versatz zwischen geschweißten Werkstücken derart, daß ihre Oberflächen nicht parallel (oder im beabsichtigten Winkel) sind.	

Table 1 – Classification
(continued)

Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 520	Distortion Déformation Verzug	The welded workpieces deviate from the required dimension and shape.	Ecart des pièces, en forme et en dimensions, par rapport aux prescriptions.	Die geschweißten Werkstücke weichen in Maß und Form vom Soll ab.	
P 521	Imperfect nugget or weld seam dimensions Dimensions incorrectes du noyau ou de la soudure Linsen- oder Schweißnaht-Maßabweichungen	Deviation of the required dimensions of the nugget or of the seam.	Ecart par rapport aux dimensions prescrites du noyau ou de la soudure.	Abweichungen von den vorgeschriebenen Maßen der Linse oder der Schweißnaht.	
P 5211	Insufficient nugget or upset thickness Epaisseur insuffisante du noyau ou largeur insuffisante de la soudure Unzureichende Linsendicke oder unzureichender Stauchwulst bzw. Stauchgrat	The nugget penetration or weld upset is too small.	Manque d'épaisseur du noyau ou bourrelet/bavure insuffisant(e).	Linse zu flach oder Stauchwulst bzw. -grat zu gering.	

**Table 1 – Classification
(continued)**

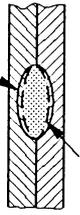
Reference Référence Nummer	Designation Désignation Benennung	Explanation English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 5212	Excessive nugget thickness Epaisseur excessive du noyau Übermäßige Linsendicke	The nugget is thicker than required.	Epaisseur du noyau supérieure à la valeur prescrite.	Linsendicke ist größer als das Sollmaß.	 <p>Nominal dimension Dimension nominale Sollmaß</p>
P 5213	Nugget diameter too small Diamètre insuffisant du noyau Linsendurchmesser zu klein	The nugget diameter is smaller than that required.	Diamètre du noyau inférieur à la valeur prescrite.	Linsendurchmesser ist kleiner als das Sollmaß.	 <p>Nominal dimension Dimension nominale Sollmaß</p>
P 5214	Nugget diameter too large Diamètre excessif du noyau Linsendurchmesser zu groß	The nugget diameter is greater than that required.	Diamètre du noyau supérieur à la valeur prescrite.	Linsendurchmesser ist größer als das Sollmaß.	 <p>Nominal dimension Dimension nominale Sollmaß</p>

Table 1 – Classification
(continued)

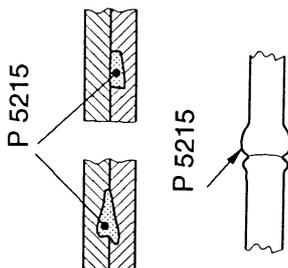
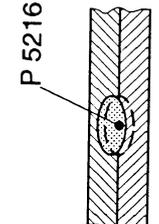
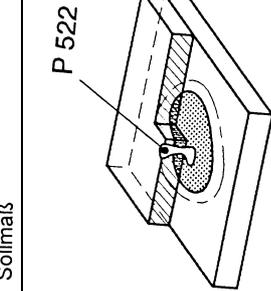
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 5215	Asymmetrical nugget or weld upset Noyau ou soudure asymétrique Asymmetrische Linsen- oder Wulst bzw. Grat- ausbildung	Asymmetry in shape and/or position of the nugget or amount of upset metal.	Forme et/ou position asymétrique du noyau ou du bourrelet/bavure.	Asymmetrie in Form und/oder Lage der Linse oder des Wulstes bzw. Grates.	 <p>P 5215</p> <p>P 5215</p>
P 5216	Insufficient depth of penetration of nuggets Pénétration insuf- fisante du noyau Unzureichende Linseneindringtiefe	Depth of penetration of nugget measured from the joint plane insufficient in one of the workpieces being joined.	Insuffisance de profondeur (mesurée à partir du plan de joint) de la pénétration du noyau dans l'une des pièces à souder.	Zu geringe Eindringtiefe der Linse, gemessen von der Verbindungsebene in einem der gefügten Werkstücke.	 <p>P 5216</p> <p>Nominal dimension Dimension nominale Sollmaß</p>
P 522	Burn-through from one side Noyau débouchant en surface Einseitig durchge- schmolzener Schweißpunkt	Blind hole at the weld point caused by expulsion of molten metal.	Trou borgne dans la soudure, dû à une expulsion de métal fondu.	Durch Herausspritzen von Werkstoff entstandenes Sackloch an der Schweißstelle.	 <p>P 522</p>

Table 1 – Classification (continued)

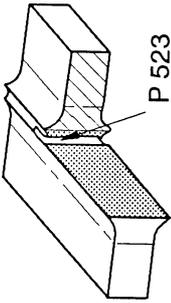
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 523	Burn-through in nugget or weld Soudure ou noyau percé(e) Durchge- schmolzener Schweißpunkt oder durchge- schmolzene Schweißnaht	Fully penetrating hole at the weld point caused by expulsion of molten metal.	Trou continu dans la soudure, dû à une expulsion de métal en fusion.	Durch Herausspritzen von Werkstoff entstandenes durchgehendes Loch an der Schweißstelle.	
P 524	Excessive heat affected zone Zone thermiquement affectée excessive Zu große Wärme- einflußzone	The HAZ is larger than required.	Zone thermiquement affectée plus grande que prescrit.	Die WEZ ist größer als das Sollmaß.	
P 525	Excessive sheet separation Ecartement excessif des tôles Übermäßiges Klaffen	The gap between the welded workpieces is greater than the maximum allowed.	Ecartement entre les tôles supérieur à la valeur maximale tolérée.	Der Spalt zwischen den geschweißten Werkstücken ist unzulässig groß.	

Table 1 – Classification
(continued)

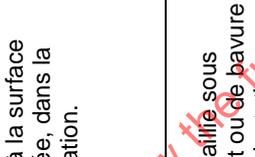
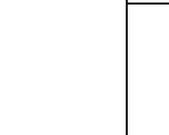
Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 526	Surface imperfection Défaut de surface Oberflächen- unregelmäßigkeit	Deviation from the required appearance of the surface of the welded workpiece in the as- welded condition.	A l'état brut de soudage, aspect de la surface de la pièce soudée ne correspondant pas aux prescriptions.	Abweichung von der verlangten Oberflächenausbildung der Werkstücke unmittelbar nach dem Schweißen.	
P 5261	Pits Creux Grübchen	Local depressions on surface of welded workpiece in the area of the electrode indentation.	Concavité locale à la surface d'une pièce soudée, dans la région de l'indentation.	Örtliche Vertiefungen auf der Werkstückoberfläche im Bereich des Elektroden- eindrucks.	
P 5262	Surface protrusions Protubérance à la surface Oberflächenauf- stülpung	Upstand of material as upset or flash next to the electrode indentation.	Matériau faisant saillie sous forme de bourrelet ou de bavure à proximité de l'indentation.	Aufstülpen von Werkstoff als Wulst oder Grat neben dem Elektroden-eindruck.	
P 5263	Adhering electrode material Métal de l'électrode adhérant à la surface de la pièce Anhaftender Elektroden- werkstoff	Electrode material adhering to the surface of the welded workpiece.	Matériau provenant de l'électrode et collé à la surface de la pièce soudée.	An der Werkstückoberfläche anhaftender Elektroden- werkstoff.	

Table 1 – Classification
(continued)

Reference Référence Nummer	Designation Désignation Benennung	Explanation Explication English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 5264	Incorrect electrode indentation Incorrecte Elektrodeneindruck	Deviation of dimensions of electrode indentation from those required. It can be:	Ecart des dimensions de l'indentation par rapport aux valeurs prescrites. Il peut s'agir de :	Abweichung vom Sollmaß des Elektrodeneindrucks. Er kann sein:	
P 52641	Excessive indentation Zu großer Eindruck-durchmesser	Indentation diameter or width greater than required.	Diamètre ou largeur de l'indentation supérieur(e) aux valeurs prescrites.	Unzulässig groß.	
P 52642	Excessive depth of electrode indentation Indenatation trop profonde Zu tiefer Elektro-deneindruck	Indentation depth greater than required.	Profondeur de l'indentation supérieure à la valeur prescrite.	Unzulässig tief.	
P 52643	Non-uniform electrode indentation Indenatation irrégulière Ungleichmäßiger Elektrodeneindruck	Indentation depth and/or diameter or width irregular.	Irrégularité de la profondeur et/ou du diamètre ou de la largeur de l'indentation.	Ungleichmäßig in Tiefe und/oder Durchmesser und/oder Breite.	

Table 1 – Classification
(continued)

Reference Référence Nummer	Designation Désignation Benennung	Explanation English	Commentaires Français	Erklärung Deutsch	Illustrations Illustrations Darstellung
1	2	3	4	5	6
P 5265	Fusing of the foil surface Fusion superficielle du feuillard Anschmelzung der Folienoberfläche	see column 2	voir colonne 2	siehe Spalte 2	
P 5266	Local fusion caused by clamps (die burr) Fusion locale due aux mâchoires Schmorstelle	Fusion at the surface of the welded workpiece in the area of current contact points.	Fusion de la surface de la pièce soudée à proximité des points de contact électrique.	Anschmelzungen an der Werkstückoberfläche im Bereich der Stromkontaktstelle.	
P 5267	Clamp marks Marque de mâchoires Spannmarkierung	Mechanical damage to workpiece surface caused by clamps.	Endommagement mécanique de la surface de la pièce par les mâchoires.	Mechanisch beschädigte Werkstückoberfläche im Bereich der Spannbacken.	
P 5268	Damaged coating Revêtement endommagé Beschädigte Beschichtung	see column 2	voir colonne 2	siehe Spalte 2	