

**ASME Code in der Druckgeräterichtlinie –
Die neue Section VIII Division 2
– alles neu?**

**ASME Code and PED –
The new Section VIII Division 2 –
really everything new?**

Dr. Dirk Kölbl



Vergleichbar?



Druckgeräterichtlinie

Verordnung am Aufstellort



und ASME Code

Technisches Regelwerk

- Prüfen ob das Regelwerk die grundlegenden Anforderungen (Anhang 1) erfüllt,
- wenn nicht, zusätzliche Anforderungen zum Regelwerk festlegen!

- Das Regelwerk möglichst als Gesamtheit anwenden (Leitlinie 9/6) "do not cherry pick!"



- Anhang 1 Absätze 1 bis 6 sind verbindlich!

- Falls die besonderen quantitativen Anforderungen, Abs. 7 vom Regelwerk nicht erfüllt werden, ist ein gleichwertiges Gesamtsicherheitsniveau nachzuweisen

- Anwenden eines Anerkannten Regelwerks allein führt nicht zur Konformitätsvermutung!!!!

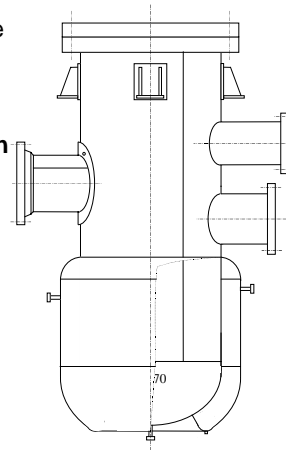
- Die Bewertung MUSS dokumentiert werden!

Artikel 3: (1) Die unter den Nummer 1.1, 1.2, 1.3 und 1.4 angeführten Druckgeräte müssen die in Anhang I genannten **grundlegenden Anforderungen** erfüllen.

ANHANG I – Grundlegende Sicherheitsanforderungen

Vorbemerkungen

1. Allgemeines
2. Entwurf
3. Fertigung
4. Werkstoffe
5. Befeuerte(..) Druckgeräte
6. Rohrleitungen
7. Besondere quantitative Anforderungen für bestimmte Druckgeräte



ASME Code Section VIII



Section VIII Division 1

- bis 3,000 psi (20 MPa), darüber besondere Anforderungen
- einfache Berechnungsmethoden
- keine Spannungsanalyse gefordert
- international weitverbreitete Anwendung für Druckbehälter

Section VIII Division 2 – Alternative Rules

- früher: bis 10,000 psi (70 MPa)
- Design by Rule / Design by Analysis
- Betreiber muß Betriebsbedingungen festlegen (User's Design Specification)
- Hersteller muß Herstellungsbericht erstellen (Manufacturer's Design Report)
- UDS wird erstellt / MDR wird zertifiziert von befähigten Personen
- höhere Festigkeitsausnutzung
- höhere Anforderungen an die Fertigung / umfangreichere zerstörungsfreie Prüfung
- geringere Wandstärken sparen Kosten
- enthält Kriterien für die Bewertung der Spannungsanalyse, Ermüdung, Dauerfestigkeit

Section VIII Division 3

- über 10,000 psi
- Spannungsanalyse ist gefordert
- vorgespannte Komponenten werden berücksichtigt
- umfangreiche zerstörungsfreie Prüfung verpflichtend
- sehr eingeschränkte Materialauswahl und Fertigung
- zwei Registered Professional Engineers sind gefordert

SEC82.PPT 10-08

Section VIII Division 2



The collage features two book covers and promotional text. On the left is the cover of the '2007 ASME Boiler & Pressure Vessel Code' with a purple header and a photograph of a large industrial vessel. On the right is the cover of the '2004 ASME Boiler & Pressure Vessel Code' with a white header and a photograph of a large industrial vessel. The text 'NEU und KNACKIG!' is overlaid on the left cover, and 'ALT UND STAUBIG..' is overlaid on the right cover. The ASME logo and 'The American Society of Mechanical Engineers' are visible at the bottom of the left cover. The text 'VIII Division 2 Alternative Rules' is visible on the right cover. The text 'RULES FOR CONSTRUCTION OF PRESSURE VESSELS' is visible at the bottom of the right cover.

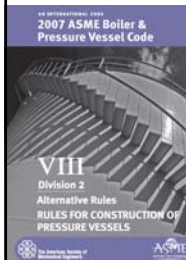
Section VIII Division 2



Alte Ausgaben bis 2004 mit 2006 Addenda
bis 10,000 psi (70 MPa)
Designgrundlagen aus den 1950er Jahren
Nicht für Computereinsatz gemacht
Immer: Design by Rule, zusätzlich Design by Analysis und Lastwechsel, Ausnahme
Betreiber muß Betriebsbedingungen festlegen (User's Design Specification)
Hersteller muß Entwurf erstellen (Manufacturer's Design Report)
UDS und MDR werden zertifiziert von RPE (Registered Professional Engineer)
Besondere Anforderungen an Material, Fertigung, Prüfung, Abnahme, Dokumentati

2004 ASME
BOILER &
PRESSURE
VESSEL CODE
AN INTERNATIONAL CODE

VIII
Division 2
Alternative
Rules
RULES FOR
CONSTRUCTION
OF PRESSURE
VESSELS



Ausgabe 2007 (und 2008 Addenda)

Komplett neue erstelltes Regelwerk
Design by Rule, ODER Design by Analysis
User's Design Specification und Manufacturer's Design Report genauer vorgegeben
RPE (Registered Professional Engineer) oder Befähigte Person als Prüfer von UDS und MDR
Komplett andere Festlegung der Berechnungsmethode
Computerfreundliche Grundlagen (Vision!)
Erhöhte Ausnutzung der Festigkeit
Anpassungen an EN 13445 und damit an die PED
Optionen für stichprobenbasierte Prüfung, UT statt RT.
Ziel: Modernes Weltklasseregelerwerk für hochwertige Druckbehälter

SEC82.PPT 10-08

VIII-2 Code Case 2575



KALENDER

1.7.2007 - Erscheinen der Edition 2007, mit der neuen Section VIII Division 2

1.1.2008 - Edition 2007 tritt in Kraft und löst die Edition 2004, Addenda 06 regulär ab.

Als Übergangslösung kann per Code Case 2575 die alte Ausgabe noch weiter verwendet werden, wenn in der Design Specification für den Auftrag vorgesehen.

1.7.2009 Ende der Übergangsfrist nach Code Case 2575.

Achtung: Es gilt das Datum des Auftrages!

„Altaufträge“ müssen nicht geändert werden.



SEC82.PPT 01/2008

VIII-2 Code Case 2575



CASES OF ASME BOILER AND PRESSURE VESSEL CODE

CASE
2575

Approval Date: September 23, 2007

The ASME Boiler and Pressure Vessel Standards Committee took action to eliminate Code Case expiration dates effective March 11, 2005. This means that all Code Cases listed in this Supplement and beyond will remain available for use until annulled by the ASME Boiler and Pressure Vessel Standards Committee.

Case 2575

Use of 2004 Edition Through 2006 Addenda for Pressure Vessel Construction
Section VIII, Division 2

Inquiry: Under what conditions may the 2004 Edition through 2006 Addenda of Section VIII, Division 2 be used in lieu of the 2007 Edition for construction of pressure vessels ordered after December 31, 2007?

Reply: It is the opinion of the Committee that U2 Certificate Holders may continue to use the 2004 Edition through 2006 Addenda of Section VIII, Division 2 to construct pressure vessels under the following conditions:

- (a) Vessels must be contracted prior to July 1, 2009.
- (b) The 2004 Edition through 2006 Addenda of Section II shall be used.
- (c) This Case number shall be listed on line 5 of the Manufacturer's Data Report as well as underneath the Code Symbol Stamp on the vessel nameplate.

SEC82.PPT 01/2008

ASME Code Section VIII, Division 2



Inhalt:

- PART 1 - GENERAL REQUIREMENTS (Allgemeines)
- PART 2 - RESPONSIBILITIES AND DUTIES (Verantwortlichkeiten)
- PART 3 - MATERIALS REQUIREMENTS (Material)
- PART 4 - DESIGN BY RULE REQUIREMENTS (Berechnungsformeln)
- PART 5 - DESIGN BY ANALYSIS REQUIREMENTS (FEM Berechnungen)
- PART 6 - FABRICATION REQUIREMENTS (Fertigung)
- PART 7 - INSPECTION AND EXAMINATION REQUIREMENTS (Abnahme und Prüfungen)
- PART 8 - PRESSURE TESTING REQUIREMENTS (Druckfestigkeitsprüfung)
- PART 9 - PRESSURE VESSEL OVERPRESSURE PROTECTION (Schutz gegen Überdruck)

Am Ende jedes Parts:

- Annexes (normativ)
- Annexes (informativ)

FMPRO.PPT 03-09

PART 1 - GENERAL REQUIREMENTS

- 1.1 General
- 1.2 Scope
- 1.3 Standards Referenced by This Division
- 1.4 Units of Measurement
- 1.5 Technical Inquiries
- 1.6 Tables
- Annex 1.A Submittal Of Technical Inquiries To The Boiler And Pressure Vessel Standards Committee
- Annex 1.B Definitions
- Annex 1.C Guidance For The Use Of US Customary And SI Units In The ASME Boiler And Pressure Vessel Codes

SEC82.PPT 01/2008

PART 2 - RESPONSIBILITIES AND DUTIES

- 2.1 General
- 2.2 User Responsibilities
- 2.3 Manufacturer's Responsibilities
- 2.4 The Inspector
- Annex 2.A Guide For Certifying A **User's Design Specification**
- Annex 2.B Guide For Certifying A **Manufacturer's Design Report**
- Annex 2.C Report Forms And Maintenance Of Records
- Annex 2.D Guide For Preparing Manufacturer's Data Reports
- Annex 2.E Quality Control System
- Annex 2.F Contents And Method Of Stamping
- Annex 2.G Obtaining And Using Code Stamps
- Annex 2.H Guide To Information Appearing On The Certificate Of Authorization

SEC82.PPT 01/2008

VIII-2 User's Design Specification



Part 2.2.2 User's Design Specification

The User's Design Specification shall include but not necessarily be limited to the following:

- Installation Site
- Jurisdictional authority
- Environmental conditions (wind, seismic, snow, temperature)
- Vessel Identification
- Outline drawings (openings, connections, closures with type and location, ...)
- Support method
- Design conditions (temperature, design pressure, MDMT, ...)
- Operating conditions (operating pressure and temperature, fluid properties, ...)
- Design fatigue life
- Materials of construction
- Loads and load cases
- Overpressure protection

SEC22.PPT 08-08

VIII-2 Manufacturer's Responsibilities



2.3.4 Manufacturer's Data Report

The Manufacturer shall certify compliance to the requirements of this Division by the completion of the appropriate Manufacturer's Data Report as described in Annex 2.C and Annex 2.D.

2.3.5 Manufacturer's Construction Records

The Manufacturer shall prepare, collect and maintain construction records and documentation as fabrication progresses, to show compliance with the Manufacturer's Design Report (e.g., NDE reports, repairs, deviations from drawings, etc.) An index of the construction records files, in accordance with the Manufacturer's Quality Control system, shall be maintained current (see paragraph 2.C.3). These construction records shall be maintained by the Manufacturer for three years after stamping of the vessel.


2.3.6 Quality Control System

The Manufacturer shall have and maintain a Quality Control System in accordance with Annex 2.E.

SEC22.PPT 08-08

VIII-2 Stamping



 Letters Denoting The Construction Type (see paragraph 2.F.1 ^g / _h)	Certified by BEHAELTERBAU GMBH (Name of Manufacturer) 600 kPa at 250 °C Maximum Allowable Working Pressure 100 kPa at 250 °C Maximum Allowable External Working Pressure (Note 2) -10 °C at 600 kPa Minimum Design Metal Temperature S/N 123456 Manufacturer's Serial Number 2008 Year Built EDITION 2007 NO ADDENDA Code Edition & Addenda
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Notes:

- 1) Information within parentheses is not part of the required marking. Phrases identifying data may be abbreviated; minimum abbreviations shall be MAWP, MDMT, S/N, and year, respectively.
- 2) The maximum allowable external working pressures required only when specified as a design condition.
- h) The construction type, all of the applicable construction types shall be included.
 - 1) F – Forged
 - 2) W – Welded
 - 3) WL – Welded layered

SEC82.PPT 08-08

Section VIII - 2 Alternative Rules - Edition 2007



PART 3 – MATERIAL REQUIREMENTS

- 3.1 General Requirements
- 3.2 Materials Permitted For Construction of Vessel Parts
- 3.3 Supplemental Requirements for Ferrous Materials
- 3.4 Supplemental Requirements for Cr–Mo Steels
- 3.5 Supplemental Requirements for Q&T Steels with Enhanced Tensile Properties
- 3.6 Supplemental Requirements for Nonferrous Materials
- 3.7 Supplemental Requirements for Bolting
- 3.8 Supplemental Requirements for Castings
- 3.9 Supplemental Requirements for Hubs Machined From Plate
- 3.10 Material Test Requirements
- 3.11 Material Toughness Requirements
- 3.12 Allowable Design Stresses
- 3.13 Strength Parameters
- 3.14 Physical Properties
- 3.15 Design Fatigue Curves

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SEC82.PPT 01/2008

PART 3 – MATERIAL REQUIREMENTS (continued)

- 3.16 Nomenclature
- 3.17 Definitions
- 3.18 Tables
- 3.19 Figures
- Annex 3.A Allowable Design Stresses
- Annex 3.B Requirements for Material Procurement (Currently Not Used)
- Annex 3.C ISO Material Group Numbers (Currently Not Used)**
- Annex 3.D Strength Parameters
- Annex 3.E Physical Properties
- Annex 3.F Design Fatigue Curves

PART 4 – DESIGN BY RULE REQUIREMENTS

- 4.1 General Requirements
- 4.2 Design Rules for Welded Joints
- 4.3 Design Rules for Shells Under Pressure
- 4.4 Design Rules for Shells Under External Pressure and Allowable Compressive Stresses
- 4.5 Design Rules for Shells Openings in Shells and Heads
- 4.6 Design Rules for Flat Heads
- 4.7 Design Rules for Spherically Dished Bolted Covers
- 4.8 Design Rules for Quick Actuating (Quick Opening) Closures
- 4.9 Design Rules for Braced and Stayed Surfaces
- 4.10 Design Rules for Ligaments
- 4.11 Design Rules for Jacketed Vessels
- 4.12 Design Rules for NonCircular Vessels
- 4.13 Design Rules for Layered Vessels
- 4.14 Evaluation of Vessels Outside of Tolerance

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PART 4 – DESIGN BY RULE REQUIREMENTS (continued)

- 4.15 Design Rules for Supports and Attachments
- 4.16 Design Rules for Flanged Joints
- 4.17 Design Rules for Clamped Connections
- 4.18 Design Rules for Shell and Tube Heat Exchangers
- 4.19 Design Rules for Thin-Wall Expansion Joints
- Annex 4.A Currently Not Used
- Annex 4.B Guide For The Design And Operation Of Quick-Actuating (Quick-Opening) Closures
- Annex 4.C Basis For Establishing Allowable Loads For Tube-To-Tubesheet Joints

PART 5 – DESIGN BY ANALYSIS REQUIREMENTS

- 5.1 General Requirements
- 5.2 Protection Against Plastic Collapse
- 5.3 Protection Against Local Failure
- 5.4 Protection Against Collapse From Buckling
- 5.5 Protection Against Failure From Cyclic Loading
- 5.6 Supplemental Requirements for Stress Classification in Nozzle Necks
- 5.7 Supplemental Requirements for Bolts
- 5.8 Supplemental Requirements for Perforated Plates
- 5.9 Supplemental Requirements for Layered Vessels
- 5.10 Experimental Stress Analysis
- 5.11 Fracture Mechanic Evaluations
- 5.12 Definitions
- 5.13 Nomenclature
- 5.14 Tables
- 5.15 Figures
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PART 5 – DESIGN BY ANALYSIS REQUIREMENTS (continued)

- Annex 5.A Linearization Of Stress Results For Stress Classification
- Annex 5.B Histogram Development And Cycle Counting For Fatigue Analysis
- Annex 5.C Alternative Plasticity Adjustment Factors And Effective Alternating Stress For Elastic Fatigue Analysis
- Annex 5.D Stress Indices
- Annex 5.E Design Methods For Perforated Plates Based On Elastic Stress Analysis
- Annex 5.F Experimental Stress Analysis

SEC82.PPT 01/2008

PART 6 – FABRICATION REQUIREMENTS

- 6.1 General Fabrication Requirements
- 6.2 Welding Fabrication Requirements
- 6.3 Special Requirements for Tube-To-Tubesheet Welds
- 6.4 Preheating and Heat Treatment of Weldments
- 6.5 Special Requirements For Clad or Weld Overlay Linings, and Lined Parts
- 6.6 Special Requirements for Tensile Property Enhanced Q and T Ferritic Steels
- 6.7 Special Requirements for Forged Fabrication
- 6.8 Special Fabrication Requirements for Layered Vessels
- 6.9 Nomenclature
- 6.10 Tables
- 6.11 Figures

SEC82.PPT 01/2008

PART 7 – INSPECTION AND EXAMINATION REQUIREMENTS

- 7.1 General
- 7.2 Responsibilities and Duties
- 7.3 Verification and Examination Prior To Welding
- 7.4 Examination of Welded Joints
- 7.5 Examination Method and Acceptance Criteria
- 7.6 Final Examination of Vessel
- 7.7 Leak Testing
- 7.8 Acoustic Emission
- 7.9 Tables
- 7.10 Figures
- Annex 7.A Responsibilities And Duties For Inspection And Examination Activities

SEC82.PPT 01/2008

VIII-2 Part 7: Inspector's Duties

Among others things it is the duty of the Inspector to

- make all the inspections specified by the rules of this Division,
- make other inspections as considered necessary,
- verify that the Manufacturer has a valid Certificate of Authorization and is working according to an approved Quality Control System,
- verifying that the Manufacturer of the completed vessel has the User's Design Specification on file,
- verify that both the User's Design Specification and the Manufacturer's Design Report are certified in accordance with the requirements of Division 2,
- to certify the Manufacturer's Data Report.

He does not have the duty of establishing the accuracy of the design analysis, however, he has the duty of establishing that the required analysis has been performed.

Some typical required inspections and verifications that are defined in the applicable rules are included in the Inspector's responsibility for inspection and examination as summarized in Annex 7A

SEC23-enu.PPT 09-08

VIII-2 Part 7: Inspector's Duties



7.A.4 Tables

Table 7.A.1 – Inspection And Examination Activities and Responsibilities/Duties

Inspection And Examination Activities	Time of Examination	Paragraph Reference		Manufacturer's Responsibilities	Inspector's Duties		
		Procedure	Acceptance Criteria				
The Certificate Of Authorization From ASME Boiler And Pressure Vessel Committee	Before Start Of All Work	Annex 2.G Annex 2.E	NA	Obtain the Certificate and maintain Quality Control System	Verify the validity of Certificate and that Quality Control System is in place and being followed		
Manufacturers Quality Control System							
Inspection And Examination Activities	Time of Examination	Paragraph Reference		Manufacturer's Responsibilities	Inspector's Duties		
		Procedure	Acceptance Criteria				
The Applicable Drawings And Documents	Fat	Proper Fitting And Cleaning Of Parts For Welding	Before Welding	6.1.3	7.3.6	Examine all parts to make certain they have been properly fitted/aligned and the surfaces to be joined have been cleaned for welding	Verify that all parts have been properly fitted/aligned and the surfaces to be joined have been cleaned for welding
				6.1.4			
				6.1.5			
				6.1.6			
Compliance Of All Material Used In The Fabrication Of The Vessel Or Part Including Sample Test Coupons	Fat	Any Repairs For Defects By Welding	During Fabrication	6.2.7	7.4.2 through 7.4.6	Make certain that weld defects are acceptably repaired and reexamined	Verify that weld defects are acceptably repaired and reexamined
				Control For Required Heat Treatments	During Fabrication	6.4	7.3.3 7.A.3.2.5
Repair Of Material Defects	Fat	Impact Tests For Welds As Production Test	After Welding	3.11.8	3.11.8	Perform tests and provide records	Verify that impact tests have been performed and that the results are acceptable
		Certification of Qualification of Nondestructive	After Welding	7.5.3	7.A.3.2.6.c	Certify that each operator meets	Verify that each operator meets requirements of

SEC82-eng.PPT 09-08

Section VIII - 2 Alternative Rules - Edition 2007



PART 8 – PRESSURE TESTING REQUIREMENTS

- 8.1 General Requirements
- 8.2 Hydrostatic Testing
- 8.3 Pneumatic Testing
- 8.4 Alternative Pressure Testing
- 8.5 Documentation
- 8.6 Nomenclature

SEC82.PPT 01/2008

VIII-2 Part 8 – General Requirements



8.1 General Requirements

8.1.1 Selection of Pressure Test Methods

- a) Except as otherwise permitted in paragraphs 8.1.1.b and 8.1.1.c, a completed vessel designed for internal pressure shall be subjected to a hydrostatic test performed in accordance with paragraph 8.2. Pressure tests of vessels designed for vacuum or partial vacuum only shall be tested in accordance with paragraph 8.1.3.1. A vessel shall be considered a completed vessel after:
- 1) All fabrication has been completed, except for operations that could not be performed prior to the test such as weld end preparation, or cosmetic grinding on the base material that does not affect the required thickness including corrosion allowance.
 - 2) All examinations have been performed, except those required after the test.

SEC82.PPT 03-09

VIII-2 Part 8 – General Requirements



8.1 General Requirements

8.1.1 Selection of Pressure Test Methods

- b) Subject to the limitations and additional nondestructive weld examination requirements that may be imposed elsewhere in this Division, a pneumatic test performed in accordance with paragraph 8.3 may be substituted for a hydrostatic test if any of the following are true.
- 1) The vessel is constructed and supported such that the weight of the hydrostatic test fluid could cause permanent visible distortion.
 - 2) The vessel cannot be readily dried and is to be used in services where traces of the testing liquid cannot be tolerated.
 - 3) The vessel is so constructed that brittle fracture is not a credible mode of failure at the pressure test conditions.
 - 4) The pneumatic test is monitored by acoustic emission examination in accordance with Article 12 of Section V.

SEC82.PPT 03-09

VIII-2 Part 8 - Hydrostatic Testing



8.2 Hydrostatic Testing

8.2.1 Test Pressure

- a) Except as noted for vessels of specific construction identified in paragraph 8.1.3, their minimum hydrostatic test pressure shall be the greater of:

$$PT = 1.43 \cdot MAWP \text{ (8.1)} \quad \text{or} \quad P_T = 1.25 \cdot MAWP \cdot \left(\frac{S_T}{S} \right) \text{ (8.2)}$$

- b) The ratio S_T/S in Equation (8.2) shall be the lowest ratio for the pressure-boundary materials, excluding bolting materials, of which the vessel is constructed.
- c) The test pressure is the pressure to be applied at the top of the vessel during the test. This pressure plus hydrostatic head is used in the applicable design equations to check the vessel under test conditions, see Part 4, paragraph 4.1.6.2.a.
- d) The requirement of paragraph 8.2.1.a represents the minimum required hydrostatic test pressure. The upper limits of the test pressure shall be determined using the method in paragraph 4.1.6.2.a. Any intermediate value of pressure may be used.

(...)

SEC82.PPT 08-08

Regelwerke als Gesamtkonzept begreifen



Zutaten: Regelwerk für Druckgeräte

- Material,
- Auslegung (Design),
- Fertigung (Fabrication),
- Schweißen (Welding)
- Prüfen (Examination)
- Druckprobe (Testing)
- Zusammenbau, Montage (Assembly)

Immer wieder gern vergessen:

- Qualitätssicherung (Quality Control)
- Herstellerzulassung (Accreditation)
- Vorprüfung (Design Appraisal)
- Abnahme (Inspection)
- Konformitätserklärung (Certification)
- Dokumentation
- Pressure Relief (Überdruckschutz)

Aufeinander
abgestimmt,

Gehören
zusammen,

Gesamt-
konzept

DGRL: Leitlinie 9/6



Frage: Ist es möglich, beim Entwurf und der Fertigung von Druckgeräten entsprechend der Druckgeräterichtlinie eine oder mehrere harmonisierte Normen, Regelwerke oder Spezifikationen teilweise anzuwenden?

Antwort: Die verschiedenen Teile (Entwurf, Fertigung, Prüfung,) einer harmonisierten Norm, eines Regelwerkes oder einer Spezifikation für Druckgeräte bilden ein zusammenhängendes Dokument, dem gefolgt werden sollte.

Dennoch ist die teilweise Anwendung einer harmonisierten Norm, eines Regelwerkes oder einer Spezifikation nicht verboten.

Unter diesen Umständen ist zu ermitteln, welche grundlegenden Anforderungen von den entsprechenden Teilen der harmonisierten Normen, Regelwerke oder Spezifikationen erfasst sind.

Zusätzlich müssen die grundlegenden Anforderungen, die nicht von den entsprechenden Teilen der harmonisierten Normen, Regelwerke oder Spezifikationen erfasst sind, analysiert werden, um die Gültigkeit der gewählten Lösungen zu beurteilen.

Wenn mehrere unterschiedliche Teile von harmonisierten Normen, Regelwerken oder Spezifikationen angewandt werden, ist zu prüfen, ob es zwischen diesen Teilen keine Unvereinbarkeiten oder Widersprüchlichkeiten besonders bei den Anwendungsdaten gibt (zulässige Spannung, Sicherheitsbeiwert, Umfang der Prüfung, ...)

Akzeptiert von der Arbeitsgruppe Leitlinien am: 10.06.1999

Akzeptiert von der Arbeitsgruppe "Druck" am: 08.11.1999



Mischen von Regelwerken?



Bitte keine Regelwerke mischen.

Do not mix Codes, please.



Section VIII Division 2 - 2007 wurde komplett neu erstellt!

**Section VIII Division 2 hat sich der PED angenähert,
diese aber nicht erreicht!**

Hersteller und Benannte Stelle sind hier gefordert

ASME Code kann ein Baustein zur Erfüllung der DGRL sein.

Aber: Gefahrenanalyse ist erforderlich!

ASME Material braucht ein „PMA“ und 3.1 oder 3.2 Zeugnis

Benannte Stelle (und Prüfstelle) sind erforderlich.

Verfahren und Personal müssen von der Prüfstelle
oder benannter Stelle geprüft werden.

Anhang 1 muß nachweislich erfüllt werden.

**International ist die neue Section VIII Div. 2 der
„Code of the Future for
Engineered Pressure Vessels“**

