ICS 27. 100

P60

File No.:J1852—2014

DL

ELECTRIC POWER INDUSTRY STANDARD OF THE PEOPLES REPUBLIC OF CHINA

中华人民共和国电力行业标准

DL/T 5366-2014

P   Replacing DL/T 5366-2006

Technical code for stress calculating of steam/water piping in power plant

发电厂汽水管道应力计算技术规程

Issued on June 29, 2014   **Implemented on November 01, 2014**

Issued by National Energy Administration of China

National Energy Administration

Announcement

2014 No.4

According to provisions of *Notice on National Energy Administration Issuing Regulations on Standardization of Energy Field Industry (Trail) and Implementation Rules* (G.N.J.K.J.〔2009〕No. 52) , through examination, National Energy Administration approves 164 industrial standards such as *Physical and Chemical Test Methods for Material Used in Nuclear Island Mechanical Components of Nuclear Power Plants* (see annex), including 158 items of energy standards (NB) and 6 items of electric power standards (DL) ,which is hereby promulgated.

Annex: industry standards catalogue

National Energy Administration

June 29, 2014

Annex:

Industry standards catalogue

S/N	Standard No.	Standard name	Substituted standard	Adopted standard No.	Approval date	Implementation date
160	DL/T 5366—2014	Technical code for stress calculating of steam/water piping in power plant	DL/T 5366—2006		June 29, 2014	November 1, 2014

ELECTRIC POWER INDUSTRY STANDARD OF THE PEOPLES REPUBLIC OF CHINA

Technical code for stress calculating of steam/water piping in power plant

DL/T 5366— 2014

Replacing DL/T 5366— 2006

Editorial department in chief: Electric Power Planning and Engineering Institute

Approval department: National Energy Administration of China

Enforcement date: November 01, 2014

Foreword

According to requirements of National Energy Administration Notice on revision plan of nuclear power standard system (G.N.K.J. (2011) No. 48), this code is completed by preparing group by conducting extensive researches, carefully summarizing design work experience in stress calculating of steam/water piping in power plant, referring to relevant foreign advanced standards, soliciting opinions from all sides and revising *Technical Code for Calculating Steam/Water Piping Stress in Fossil Power Plants Code for Designing* DL/T 5366—2006.

This code is divided into 7 chapters and 2 annexes, the specific technical contents include: general provisions, terms and symbols, basic requirement, allowable stress of steel, piping design parameters, calculation of wall thickness of piping, bend and elbow under internal pressure, and piping stress calculation.

Main contents of this revision include:

1. Application scope is expanded to stress calculation of steam/water piping within scope of fossil fuel power plant and conventional island of PWR nuclear power plant.

2. Design parameters of piping in fossil fuel power plant is revised and design parameters of conventional island piping in PWR nuclear power plant are increased.

3. Calculation method for minimum wall thickness of longitudinal electric fusion welding pipe, bend and elbow within creep temperature range is increased.

4. Minimum wall thickness of straight pipe before bending of induction heating bend is revised.

5. General provisions for stress calculation of piping are increased.

6. Accidental load kinds and application conditions taken into account in stress calculation are increased, such as counter-force of safety valve, seismic load, wind load, steam hammer force, imaginary crushing load of high energy piping in conventional island of nuclear power plant .

7. Performance data table of domestic and foreign common steel is revised.

This code shall substitute *Technical Code for Calculating Steam/Water Piping Stress in Fossil Power Plants Code for Designing* DL/T 5366—2006 since the date of implementation.

This code is in charge of by National Energy Administration, proposed by Electric Power Planning & Engineering Institute, daily managed by Energy Industry Power Generation Design Standardization Technical Committee and specific technical contents are explained by East China Electric Power Design Institute of China Power Engineering Consulting Group

. Please send any suggestion & opinion during implementation process to Electric Power Planning & Engineering Institute (address: 65 Ande Road, Xicheng District, Beijing, zip code: 100120).

Organization in charge of drafting, participation drafting organization, main drafters and main reviewers for this code:

Organization in charge of drafting: East China Electric Power Design Institute of China Power

Engineering Consulting Group

Participation drafting organization: China Nuclear Power Engineering Co., Ltd.

Main drafters: Lin Lei, Jiang Zhen, Fan Qin, Wang Xuefeng, Fan Yizhi

Main reviewers: Wen Qiding, Huang Tao, Tang Fei, Yang Zuhua, Sun Feng, Ling Hebin, Wang Jian, Weng Yanzhu, Ma Xinqiang, Tang Maoping, Liu Li, Wu Huaming, Xu Lei, Wu Ping, Xi Xuezhang

Contents

1 General provisions

1.0.1 This code is specially formulated in order to stress calculation of steam/water piping in power plant and guarantee safe, economic and continuous operation of power plant.

1.0.2 This code is applicable to stress calculation of steam/water piping within scope of fossil fuel power plant and conventional island of PWR nuclear power plant. Piping stress calculation method of this code is also applicable to steam/water piping of other type power plants and other reactor type nuclear power plant conventional island.

1.0.3 This code is not applicable to stress calculation of the following piping:

    1 Nonmetallic piping;

    2 Cast iron and other brittle materials;

    3 Vacuum piping.

2 Terms and symbols

2.1 Terms

2.1.1 Stress intensification factor

The ratio between maximum bending stress generated by bends, elbows, reducers and tee piping fittings under the action of bending moment and maximum bending stress generated by straight pipe bearing the same bending moment. Or the ratio between fatigue strength of bends, elbows, reducers and tee piping fittings and fatigue strength of straight pipe under the same alternate bending moment action.

2.1.2 Cold spring

Elastic deformation imposed on piping in advance during piping installation so as to generate expected initial displacement and stress and reach acting force and moment of reducing initial thermal state stress and initial thermal state pipe end.

2.1.3 Flexibility

Piping's capacity of absorbing thermal expansion and cold contraction and other displacement deformation through deformation.

2.1.4 Creep

The phenomenon that inelastic deformation of pipes slowly and continuously increase along with continuation of time under certain temperature and stress condition.

2.2 Symbols

D_a——Outer diameter of pipe or tube;

D_i—— Inner diameter of pipe or tube;

h——Size factor ;

i——Stress intensification factor;

k——Flexible coefficient;

M_A——Resultant moment on pipe or tube cross section due to dead weight and other continuous external applied load action;

M_B——Resultant moment on pipe or tube cross section by accidental load action;

M_C——Resultant moment range of thermal expansion calculated according to full compensation value and elasticity modulus of steel at 20℃;

p——Design pressure;

R——Bending Radius of bend, elbow;

S_c——Calculated wall thickness of pipe or tube;

S_m——Minimum wall thickness of pipe or tube;

w^-——Decreasing coefficient of longitudinal electric fusion welding steel pipe within creep temperature range;

W——Section modulus in bending of pipe or tube;

完整版本请在线下单/Order Checks Online for Full version

联系我们/or Contact:

TEL: 400-678-1309

QQ: 19315219 ｜ Skype: Lancarver

Email: info@lancarver.com

http://www.lancarver.com

线下付款方式：

I. 对公账户：

单位名称：北京文心雕语翻译有限公司

开 户 行：中国工商银行北京学清路支行

账 号：0200 1486 0900 0006 131

II. 支付宝账户：info@lancarver.com

III. Paypal: info@lancarver.com

注: 付款成功后，请预留电邮，完整版本将在一个工作日内通过电子 PDF 或 Word 形式发送至您的预留邮箱，如需索取发票，下单成功后的三个工作日内安排开具并寄出，预祝合作愉快！

NOTE All documents on the store are in electronic Adobe Acrobat PDF format, there is not sell or ship documents in hard copy. Mail the order and payment information to info@lancarver.com , you will shortly receive an e-mail confirming your order.