b) deep borehole projects (excluding the boreholes for seismic investigations) for the purpose of thermal energy output from the earth entrails; radioactive waste disposal; water supply.
c) projects for the extraction of inert, rock or effective materials;
d) projects for open-pit or deep mining of coal;
e) projects for oil and natural gas production;
f) ore-mining and ore-processing projects;
g) extraction of bituminous schists;
h) extraction of non-metalliferous and mineral raw materials;
i) projects for on-ground equipment for oil, gas and ore output;
j) projects for coke plants and coal dry distillation plants;
k) projects for production of cement and other building materials and elements.

3. Power economy:
   a) projects for industrial equipment for electricity generation and steam and hot water production, not included in Annex No. 1 A;
   b) projects for industrial equipment for gas, steam and hot water transfer, as well as surface electric power lines;
   c) overground gas storage projects;
   d) projects for storage of explosion-hazardous and fire-risk gases in underground depots;
   e) projects for coal briquette compaction;
   f) projects for surface storage of fossil fuels;
   g) projects for equipment for nuclear fuel production and dressing;
   h) projects for equipment for processing of irradiated nuclear fuel materials and for disposal and processing of radioactive waste, not included in Annex No 1 A;
   i) projects for hydroelectric power generation;
   j) storage of solid wastes from thermal power stations - dust and ash.
4. Metal processing, machine building and electronics:
   a) projects for metallurgical and steel production plants, including foundries, smitheries and rolling workshops, if they are not included in Annex No 1 A;
   b) projects for production, melting, purification, drawing and rolling of non-ferrous metals, excluding the precious metals;
   c) projects for the production of compacted, drawn or stamped articles;
   d) projects for surface inoculation and mechanical processing of metals;

   e) projects for production of sheet metal boilers, reserv tanks and other vessels;
   f) plant projects for the production of motor vehicles and t engines;
   g) projects for shipyard construction;
   h) projects for production and maintenance of aviation vehicl
   i) projects for railway equipment production;
   j) projects for excavations works by means of explosives;
   k) projects for ore roasting and sintering equipment;
   l) battery production projects;
   m) projects for production of electrical insulation materials.
5. Projects related to glass, faience and porcelain ware.
6. Chemical industry:
   a) projects for chemical intermediate product treatment production of chemicals not included in Annex No 1 A;
   b) projects for production of plant protection preparatic insecticides, pharmaceutical and cosmetic products, pai dye materials, elastomers and peroxides;
   c) projects for productions based on biotechnolog processes;
   d) projects for storage of oil and petrochemical and chem products;
   e) projects for production and processing of elastomers polymers.
7. Food industry:
   a) projects for plant and animal fat production;
   b) tin industry projects for meat, fruit and vegetables;
   c) meat processing facility projects;
   d) projects for milk product production;
   e) projects for breweries and malt producing enterprises;
   f) projects for production of sugar products, syrup alcoholic drinks;
   g) slaughterhouse construction projects;
   h) industrial starch production projects;
   i) projects for factories for fish meal and oil production;
   j) sugar factories projects;
   k) projects for production of spirit and yeast;
   l) projects for processing of plant raw materials, fodder, t and tobacco articles production.

8. Textile, leather, wood processing and paper industry:
   a) projects for equipment for washing, degreasing and bleaching of wool;
   b) projects for production of wood plates from sawdust and wood fibres, as well as of plywood;
   c) projects for wood mass, paper and cardboard production;
   d) projects for fibre dyeing factories;
   e) cellulose production and processing projects;
   f) leather shop projects.
9. Infrastructure:
   a) town planning;
   b) projects for construction of roads, intercity railway sections, harbours, including river ones, and airfields, including such for the agricultural aviation that are not treated in Annex No. 1 A.
   c) projects for cableways and other mountain communications;
   d) projects for drainage and correction of river beds;
   e) projects for dams and other constructions for collecting and continuous holding of water;
   f) projects for tramways, rapid city underground and overground trains, suspension lines, special trains and similar passenger trains;
   g) oil and gas pipeline construction projects;
   h) projects for water transportation at long distances;
   i) yacht harbour projects.
10. Other projects:
   a) Town planning and construction designs for recreation zones and tourist resorts;
   b) runway projects for competitions and testing of cars and motorcycles;
   c) equipment for processing, converting to harmless products and storage of waste not included in Annex No 1 A;
   d) projects for purification plants;
   e) projects for slurry storage places;
   f) iron shot storage projects;
   g) projects for testing grounds of engines, turbines and reactors;
   h) projects for artificial mineral fibre production;
   i) projects for production, packing, loading or filling (in cartridge-cases or appropriate capsules) of gunpowder and explosives;
   j) incinerators;

   k) radio and television transmitters and other sources of electromagnetic fields.
11. Projects for alterations of projects according to this Annex, that are used exclusively or mainly for the development and testing of new methods or elements with duration not more than one year.

Annex 2

Requirements for the Preparation of the Preliminary EIA Report

ıe preliminary EIA report shall contain:

1. An annotation of the project, facility or activity covering:
1.1. the location - map (chart) of the area;
1.2. the characteristics of the technology - technological chart;
1.3. the environmental and economic characteristics.
2. A description of the environment subject to the impact.
3. A forecast for the impact on the environment.

›mponents	Characteristics	Assessment
	deterioration of quality prevailing winds precipitation/humidity temperature/inversions	
ıters		
	surface waters - condition of the intake characteristics of waste waters degree of impact on the water body toxicity for water ecosystems underground water regime hydrological balance water users water consumption drainage systems floods silting regime	
·ils		
	deterioration of category, structure or productivity soil type chemical damage physical damage degree of erosion	
ınts and Animals ›tected Areas		
	plant and animal species: extinction or decrease of populations	
	biological diversity: reduction or disruption of nutritive links ecosystems: extinction or damage of habitat protected areas: extinction of threatened and rare species	
Landscape		
	change (damage) of the landscape	
Human Health and Safety		
	organization on the territory: areas for work, habitation and recreation noise non-ionizing radiation radioactivity wastes - collection and treatment affected population	
Socio-Economic Conditions		
	employment impact on the well-being and quality of life decline of the quality and quantity of the recreational opportunities	
Cultural Heritage		
	impact on historic, archaeological or architectural monuments impact on the current use of land and resources for traditional purposes	

Impacts which are not included in the characteristics of the components shall be described in a free form.

omponents shall be studied and assessed in terms of the specific iteria as follows:

a) territorial scope - depending on the radius of the impact: 5 km - small; 10 km - average; 50 km - substantial; 100 km - large; over 100 km - exceptionally large;

b) degree of the impact - in percentage of the admissible limits: up to 50 % of the MAQ - insignificant; above 50 per cent of the MAQ - substantial; above the MAQ - dangerous;

c) duration - short or long;

d) frequency - low, high, regularly, continuously;

e) recover opportunities - yes/no;

f) cumulative effect.

ie impact of the project, facility or activity shall be assessed generally in rms of all the components as follows:

a) insignificant

b) substantial;

c) dangerous.

here at least one component is assessed as "substantial" or angerous", the project, facility or activity shall be subject to a final vironmental impact assessment report.

here optional solutions exist, the choice of the option may be based general rates as indicated in the formula:

$$K = \frac{\Sigma \left(Vi \frac{Ae}{Ai}\right)}{1000}$$

ere: Vi is the annual volume of the i-pollutant contained in waste substances;

Ae is the MAQ for the pollutant accepted as standard (the pollutant with the lowest degree of harmfulness);

Ai is the MAQ for the i-pollutant contained in waste substances.

ie one with the lowest level shall be given preference.

4. A conclusion with recommendations on preparing a final report or making a final decision on the EIA.

Annex No. 3

Requirements to the Preparation of the Final EIA Report

The final EIA report shall contain:

1. An annotation of the project, facility or activity containing information on:

1.1. the location - map (chart) of the area;

1.2. the characteristics of the technology - technological chart;

1.3. the environmental and economic characteristics:

a) fixed assets - total, including the ones for environmental protection;

b) used resources: fuels and electricity; ores and non-ore mineral resources; raw materials; water resources: for production purposes (good for drinking, conditionally pure, repeatedly used); forest resources; recycled resources; land - according to the category;

c) area for depositing wastes;

d) output in physical terms and value;

e) profit rate.

2. Description of the environment which is subject to the impact:

2.1. Condition of the atmospheric air:

a) characteristics of the climatic and meteorological factors influencing the condition of the air;

b) sources of pollution and quantities of pollutants in terms of type and composition;

c) pollution of the atmospheric layer above the ground surface and territorial scope of the areas with polluted air, taking into account the existing background.

The criteria for the condition of the atmospheric air are the upper limits for the harmful substances determined with the existing statutory regulations. Where harmful substances may interact in the atmosphere, their combined impact is taken into account;

2.2. Condition of surface and underground waters:

a) quantitative and qualitative description of water resources on the territory and expected categorization of water bodies;

b) hydrogeological and hydrological conditions and factors influencing the state and regime of surface and underground waters;

c) major sources of pollution, quantity and location of the disposal of waste waters, composition and ways for their purification;

d) major water users and water consumption by water categories;

e) water supply location;

f) changes in the regime of water streams due to water consumption, river bed corrections, hydrotechnical equipment and others as well as their impact on the regime of underground waters and the overall condition of water ecosystems.

The criteria for the quantitative and qualitative condition of water resources are the hydroeconomic balance and the existing standards and rates;

2.3. Condition of soils and changes of the geological base and relief:

a) identification of the changes of the geological base and relief as a result of economic activities;

b) identification of damaged lands (eroded, excessively humid, salinated, acidified, destroyed by economic activities and polluted with harmful substances and wastes);

c) deterioration of the land category depending on the degree of pollution or damage of soils; change of soil fertility.

The criteria for the condition of soils are the maximum admissible concentration of harmful substances and their evaluation-based categorization;

2.4. Condition of plants and animals:

a) characteristics and assessment of the condition of vegetation, dominant and threatened plant species and their habitat;

b) characteristics and assessment of the condition of animals, dominant and threatened animal species and their habitat;

c) characteristics and assessment of the condition of protected areas.

The criteria for the condition and assessment are: the existing types of species; the numbers and viability of populations; the degree of threat for extinction of the species; characteristics of forests, presence of negative factors; degree of degradation and stability of ecosystems; specific regime on the protected area;

2.5. Sanitary and hygienic conditions in the habitat and its burdening with noise, vibrations, non-ionizing radiation and radioactive pollution of the territory:

a) characteristics of the territory;

b) areas of acoustic discomfort and sources of noise;

c) areas influenced by sources of electromagnetic fields, heat emission and radioactivity;

d) characteristics of wastes, ways of their disposal, old waste deposits;

e) characteristics of the social infrastructure;

f) overall hygienic assessment of the territory.

The criteria for the condition of the habitat are the established maximum

radiation pollution of various territories and areas in the human settlements, waste rates.

3. A forecast on the expected impact.

The forecast is worked out by describing in detail the impact which the project, facility or activity will exert on the living and non-living nature and comparing it to the existing condition of the environment.

The forecast assessment shall cover:

a) the changes in the condition of the various components of nature (air, waters, soils, flora and fauna) and their impact on the environmental balance;

b) the changes of the anthropogenic load of the environment (settlements, population density, use of the territory, etc.);

c) the changes of the sanitary and hygienic conditions and the environmental threat for the settlements or parts thereof and forecasting the health risks for the population with respect to the pollution with harmful substances, noise and other emissions, collection and disposal of wastes.

The forecast assessment shall contain quantitative and qualitative characteristics of the expected impact and refer to the methods used to identify them.

The results of the forecast shall be processed in accordance with the chart attached hereto and accompanied by an explanatory note.

4. Alternative solutions and measures to reduce the harmful impact (described in the chart attached hereto).

5. Value assessment of damages. (When alternative solutions are considered preference shall be given to the most acceptable one with respect to the impact on the environment). The source for recovery of the damages shall be indicated.

6. Action plan for emergencies and outburst emissions of pollutants worked out by the investor or the person initiating the activity with the following contents:

6.1. assessment of the risk of emergencies and outburst emissions of pollutants;

6.2. measures and means to prevent, restrict and eliminate emergency emissions of pollutants.

7. Monitoring plan indicating the means of monitoring and control of the harmful substances emitted from the project or facility; provisions for monitoring of the environment parameters, if necessary, at specific monitoring points with a view of restricting and preventing the harmful impact on the human health and environment.

8. Conclusion with recommendations on the acceptance or rejection of the project, facility or activity and requirements for its fulfillment.

Chart for the Results of the Forecast on the Environmental Impact

Impact on Component / Characteristics	Forecast on the Impact of the Project on the Environment				Alternative Solutions	Measures for Reduction
	Direct Impact		Indirect Impact			
	Construction	Operation	Construction	Operation		
Air: quality of the air prevailing winds precipitation/humidity temperature/inversions						
Waters: surface waters intake - waste waters water ecosystems underground waters - regime hydrological balance water users drainage systems floods silting regime						
Soils: deterioration of category structure/productivity soil type chemical damage physical damage						
Plants and Animals: plant species animal species biological diversity ecosystems protected territories						
Landscape: change (degradation)						
Human Health and Safety: organization of the territory noise non-ionizing radiation radioactivity wastes affected population						
Socio-Economic Conditions: employment well-being, quality of life recreation						
Cultural heritage: historic, archaeological and architectural monuments use of land and resources for traditional purposes						

The criteria set forth in Annex No. 2 are used to assess the expected impact.
Impacts beyond the characteristics included in the chart are described in a free form.

P R I O R I T I E S

of the Energy Strategy till the Year 2010

1. Energy saving as a trend of development with biggest possible reserves in the future, but also greatest uncertainty in terms of quantitative evaluation and implementation in time - saved energy in consumption equivalent to saved power generation. Despite the uncertainty and because of a number of reasons the trends is of highest priority.

2. Stabilization of the existing capacities by means of rehabilitation and modernization as well as by creating sufficient guarantees for the import of energy resources.

3. Ecologically sound development of the energy sector, observing the international conventions for reduction of the emissions of sulphur, nitrogen and carbon oxides and ash, in accordance with the social and economic state of the country.

4. Domestic primary energy resources, mainly coal, that will allow maximum energy independence and security, respectively. The increase of domestic coal production shall be in compliance with the possibility for the ecological requirements to be met technically and economically. This will be achieved either through mixing with high quality imported coal /as an alternative of new thermal power plants burning imported coal/ or through the implementation of new technologies like fluidized bed combustion, preliminaty gasification, etc.

5. Prospects for development of nuclear power in the country, which imports 75% of the primary energy resources and has only low quality domestic coal deposits. Nuclear development should not, however, take a rambling, reckless course regardless of public concern and opinion, but rreality-oriented, shunning flamboyancy and cheap political dividends.

There has been proposed a plan, in compliance with the opinion of the international banks and other international institutions, for shutting down of the old units and building of a replacing capacity of a new generation after 1998, that is to be available between 2005 and 2010.

6. Three trends of development of gas.

- direct gas supplies to households as an alternative of centraliz district heating and use of electricity for heating;

- combined steam and gas generation capacities for production of electricity and heat /co-generation/, which have the highest efficiency of p wer generation;

- peak power plants for covering the inherent irregularities of th load diagram of the power system.

7. Long-term programme for using the existing hydro potential and solution of the connected regional social problems of unemployment.

The above priorities, realistic approach towards the demand prospe and pragmatical attitude to the possibilities for rehabilitation of the existing capacities and construction of new ones are the backbone of the relatively more exhaustive Energy Charter'93, reflecting the medium and long term strategy of the Committee of Energy.

資料1

STATE GAZETTE No 81/1991

MINISTRY OF ENVIRONMENT

Standards for admissible emissions
(concentrations in waste gases) of harmful substances
emitted in the atmosphere

Article 1
(1) The standards for admissible emissions are related to the existing industrial processes and activities as well to the design and building of new industrial and other sites, which are sources of emissions.
(2) After reconstruction and modernization of production process of other sites the standards of new sites are enforced.

Article 2
(1) When investigating and developing projects, besides obeying of these standards the investor and the designer are obliged to clear out the air pollution in the region for each of the industrial sites and they are obliged to foresee what to be the degree of purifying and the height of the stack. So that after project's fulfillment the content of harmful substances in the air should not to exceed the limit of the admissible emissions.
(2) The industrial stack's height must be at least 5 m. higher than the highest building in 50 m's radius area.
(3) The stack's height must be at least 12 m higher than the level of the terrain when the industrial site is situated in a hot build up terrain.
(4) The investor and the designer are obliged to take into consideration the newest technics and technologies and to provide the possible low level of emission than stated in this document standards.

Article 3
The quantity of the industrial and ventilation gases and its content of harmful substances are reduced to normal conditions (760 mm Hg and 0°) and dry gas.

Article 4
(1) The standards concern industrial and ventilation gases measured after the clarifying equipment, after the production unit or before the stack without marcfying the concentration by fresh air.
(2) The quantity of gases in m³/h and measured concentrations of harmful substances in processes and activities not mentioned in Article 20 to 38 are determined according to the following:
1. The measured concentrations for processes, where combustible installation are used, are reduced to oxygen content in volume percentage:
a/ production of asphalt mixtures - 17%;
b/ production of glass - 8% in crucible and tub furnaces which has continuous process and 13% in periodically working furnaces;

c/ direct drying of products and materials with hot gases, obtained in a combustible fire-box - 17%;

d/ melting of mineral materials as basalt, slags and others - 8%;

e/ heating of metals for stretch and other treatments - 5%;

f/ production of swollen perlite, schists or clays - 14%;

g/ burning of wooden and vegetable wastes, paper, straw - 11%;

h/ burning of lye from the cellulose production - 5%.

2. The emissions from technological production processes gases are determined accordingly to their are determined according to their content and quantity right after the last technological apparatuses from where the gases are lead to the clarifying installation or are discharged in the atmosphere. When through technological purposes or through security reasons a rarefaction with fresh air is imposed or penetrating of air along the track before the clarification installation is possible the measured concentrations after the clarification are reduced to the quantity after the technological track. For this purpose the oxygen content after the technological track and after the clarification is measured and according to the results the emission is recalculated and the volume of the additional air is eliminated.

(3) When the measured oxygen content is different from the determined content for the corresponding process or is increased because of gas rarefaction, the measured emission is corrected by a multiplication by K, determined as follows:

$K=(21-Ot):(21-Op)$ where:

Ot - is the oxygen content in volume percentage for the corresponding process or the oxygen content at the exit of the technological track;

Op - is the measured oxygen content in volume percentage after the clarifying installations or before the gas discharge in the atmosphere.

Article 5

Emission measurement is done during the work of the production technological track and 70 to 100% loading.

Article 6

For substances which can be found in gases in a different physical condition (particles, vapor and gas) the standards refer to their general content.

Article 7

The general emission of the powdered substances according to article 13, paragraph 1, includes nontoxic dust and powdered substances in it according to article 14 and 18, and their content must not exceed the values determined for the corresponding class values.

Article 8

Everywhere in these standards the sulphur oxides emission is the sum of sulphur dioxide and sulphur trioxide determined as sulphur dioxide, and the nitrogen oxides emission is the sum of nitrogen dioxide and nitrogen oxide, determined as nitrogen dioxide.

Article 9

By production track unit capacity and by combustible installation capacity and others is understood the nominal productivity per hour of a definite unit or group of units jointed in one stack. The combustible installation power is determined by the calorific ability of the fuel quantity, fed for nominal load.

Article 10

Standards for sites stating ot work till the end of 1992 hold till 31 December 1995. During this period the economic leaders should undertake measures for emission reducing to the values, determined for new sites.

Article 11

"Mass flow" per hour is the quantity of a given substances in kilograms or in grams which is discharged with the gases in the atmosphere per hour.

Article 12

Emission measurement by the controlling authorities is done according to methodologies, regulated by Bulgarian State Standard and when there is no Bulgarian State Standard - according to the Minister of Environment.

Article 13

(1) The general powdered substances emission should not exceed:

1. for sites that are started to work till the end of 1992 with rate of gas delivery:

a/ to 20 xm³/h - 300 mg/m³
b/ from 21 to 100 xm³/h - 200 mg/m³
c/ over 100 xm³/h - 150 mg/m³

2. for new sites that are starting to work after 1992 with rate of gas delivery:

a/ to 20 xm³/h - 150 mg/m³
b/ from 21 to 60 xm³/h - 130 mg/m³
c/ over 60 xm³/h - 50 mg/m³

(2) Soot emission independently from the gas quantity should not exceed 50 mg/m³0.

Article 14

(1) Emissions of powdered non-organic substances, listed in Appendix 1 should not exceed the following values:

1. First class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 0,1 kg/h and more - 2 mg/m³;

b/ for new sites with mass flow of 1 g/h and more - 0,2 mg/m³;

2. Second class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 1 kg/h and more - 5 mg/m³;

b/ for new sites with mass flow of 5 g/h and more - 1 mg/m³;

3. Third class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 3 kg/h and more - 15 mg/m³;

b/ for new sites with mass flow of 25 g/h and more - 5 mg/m³;

(2) If there are more substances from one and the same class the total emission should not exceed the determined standard for the corresponding class.

(3) If there are substances from different classes the emission of each of them should not exceed the standard for the corresponding class; the total emission of substances from I and II class should not exceed the standard for II class substances and when there are substances from I and II, II and III or I, II and II class - the total standard should not exceeds the standard for III class substances.

Article 15

(1) Limiting of emissions when powdered materials are treated, produced and transported:

1. Units and equipment for treatment (breaking, classifying, mixing, pelletizing, pressing into briquettes and others for example) or production of powdered materials should be put in capsules and the gases with dust content should be taken in and should be lead to the cleaning equipment;

2. The transport of powdered materials should be obligatory done by closed units: conveyors, shnecks, reddlers pneumatic transport and others. When putting in capsules is partly impossible the dust contenting gases are taken in and lead to a clarifying equipment;

3. When loading and unloading dust forming materials sucking and cleaning equipment are put:

a/ on the permanent places where loading and unloading is done by elevator, blade outfit and others;

b/ at the outlet pipe of the loading equipment;

c/ at scarifying equipment at the beginning of pneumotransport and of mechanical unloading equipment.

4. When sucking (catching) of the dusty air is not possible during such operations (as loading on wagons and on lorries) outlets with changeable heights are used (telescopic outlets) and also regulating valves at the exit of outlets are put in order to slow down the speed of the going out material;

5. When closed volumes are filled in (such as silos, tank-cars and others) the air coming out of them is caught and led to the cleaning equipment;

6. The loading platforms and the roads should be asphalt-paved or covered with other equivalent pavement and they should be kept clean.

(2) In order to decrease the emissions when storing and depositing of dust forming materials, the following measures should be taken:

1. storage in silos;

2. covering and closing of the storehouse including the subsidiary equipments;

3. covering of the stored material surface with a canvas;

4. closing of the deposited material;

5. the warehouse should be surrounded by banks, by plantations and fences against the wind.;

6. maintenance of a constantly moist surface of the warehouse.

Article 16

Non-organic gaseous and vaporous substances' emissions listed in Appendix 2 should not exceed the following values:

1. First class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 100 g/h and more - 3 mg/m^3;

b/ for new sites with mass flow of 1 g/h and more - 1 mg/m^3;

2. Second class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 150 g/h and more - 15 mg/m^3;

b/ for new sites with mass flow of 50 g/h and more - 5 mg/m^3;

3. Third class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 1000 g/h and more - 100 mg/m^3;

b/ for new sites with mass flow of 300 g/h and more - 30 mg/m^3;

4. Forth class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 10 kg/h and more - 1000 mg/m^3;

b/ for new sites with mass flow of 5 kg/h and more - 500 mg/m^3;

Article 17

(1) Organic substances' emissions listed in Appendix 3 should not exceed the following values:

1. First class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 0,1 kg/h and more - 20 mg/m^3;

b/ for new sites with mass flow of 0,1 kg/h and more - 20 mg/m^3;

2. Second class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 3 kg/h and more - 150 mg/m^3;

b/ for new sites with mass flow of 2 kg/h and more - 100 mg/m^3;

3. Third class substances

a/ for sites that are started to work till the end of 1992 with mass flow of 6 kg/h and more - 300 mg/m^3;

b/ for new sites with mass flow of 3 kg/h and more - 200 mg/m^3;

(2) If there are more organic substances' gases from different classes with mass flow of 3 kg/h and more the total emission determined as hydrogen carbides, should not

exceed 200 mg/m^3 for plants that are started to work till the end of 1992.

(3) With installations which can discharge intensive stinking substances (organic and non-organic) measures for limiting the emissions are obligatory taken such as: enclosing in capsules, work under pressure and other and the gases are caught in and led to be cleared (to become odorless). When the odour level is over 100 000, the clarification (odourlessness) should be over 99%.

Article 18.

(1) Emissions of substances with late gene-toxic influence should not exceed the following values:

1. First class

a/ asbestos as fine dust;

b/ benz (a) pirene;

c/ berrillium and its compounds; determined as beryllium;

d/ (a, h) authracene;

e/ 2-naphtillamine;

- with mass flow of 0,5 g/h and more the emission should not exceed 0,1 mg/m^3;

2. Second class

a/ arsenious trioxide and arsenious petooxide, arsenious acid and its salts, determined as arsenic;

b/ chromium (6 valent) and its compounds (for example calcium chromate), chromium (3 valent), strontium chromate and zinc chromate, determined as chromium;

c/ cobalt aerosols and hardly soluble cobalt sats, determined as cobalt;

d/ 3,3 dichlorine benzidine;

e/ dimethylsulphate;

f/ ethylenimine;

g/ nickel, nickel sulfite, nickel oxide, nickel carbonate and nickel tetracarbonate, determined as nickel;

- with mass flow from 5 g/h and more emission should not exceed 1 mg/m^3;

3. Third class

a/ achrylnitryl;

b/ benzene;

c/ 1,3 butadyene;

d/ epychlorine hydrine;

e/ 1,2 dibromettan;

f/ 1,2 epoxypropan;

g/ ethylovene oxide;

h/ hydrazine;

i/ vinilchloride;

- with mass flow from 25 g/h and more the emission should not exceed 5 mg/m^3;

(2) If there are substances from I and II class the total emission should not exceed 1 mg/m^3 and if the substances are from I and III class, II and III class, or I, II and III class - 5 mg/m^3 and for every separate substance the corresponding class standard should be observed.

Article 19.

The accessible surface loading with harmful substances (precipitated) on the land in the open areas (the average values per annum) are:

1. dust - 350 mg/m³ per twenty four hours;

2. lead and its non-organic compounds in precipitated dust, determined as lead - 0,25 mg/m³ per twenty four hours;

3. cadmium and its non-organic compounds in the precipitated dust, determined as cadmium - 0,005 mg/m³ per twenty four hours;

4. thallium and its non-organic compounds in the precipitated dust, determined as thallium - 0,01 mg/m³ per twenty four hours;

5. hydrogen fluoride and its gaseous non-organic compounds in the precipitated dust, determined as fluorine - 0,001 mg/m³ per twenty four hours;

6. zinc in the precipitated dust - 0,4 mg/m³ per twenty four hours.

Article 20.

(1) Gaseous emissions from steam boilers with heat power over 50 MW should not exceed the values listed in Appendix 4.

(2) Emissions from combustible processes with heat power from 5 to 50 MW inclusive should not exceed the values listed in Appendix 5.

(3) Emissions from combustible processes with heat power from 500 KW to 5 MW should nor exceed the values, listed in Appendix 6.

(4) The standards refer to oxygen content in smoke according to paragraph 1 and 2:

1. through grate burning - 7% volume;

2. through dust burning and dry taking out of ashes - 6% volume;

3. through dust burning and liquid slag discharging - 5% volume;

4. for liquid fuel - 3% volume;

5. for gaseous fuel - 3% volume.

Article 21.

Cement production:

1. Dust emissions - according to Article 13, paragraph 1;

2. Nitrogen oxide's emission from furnaces for clinker should not exceed 1500 mg/m³;

3. Sulphur oxide's emission from furnaces for clinker should not exceed 750 mg/m³;

4. Gaseous emissions from furnaces for clinker are with 9 % volume oxygen content.

Article 22.

Production of ceramic and clay articles:

1. Emissions are determined by 18% volume oxygen content in the gas;

2. Powdered emissions - according to Article 13, paragraph 1;

3. With sulphur content of 0,12% and more in the incoming raw material the emission of sulphur oxides with mass flow from 10 kg/m³ and more should not exceed 1500 mg/m³.

Article 23.

Baking of dolomite, gypsum, limestone, bauxite, kieselguhr, magnesite, quartzite and others:

1. Dust emissions - according to Article 13, paragraph 1 and when raw materials are with chromium content, the emission of chromium and its compounds, determined as chromium, should not exceed 10 mg/m³;

2. Nitrogen oxides' emission should not exceed:

a/ 1800 mg/m³ with revolving furnaces;

b/ 1500 mg/m³ with other kinds of furnaces;

3. Emissions are taken with 9 % volume oxygen content in gases.

Article 24.

Installations for non-ferrous metals:

1. Dust emissions of the working plants are limited to 50 mg/m³ till 1993 and for new installations and units working after 1993 and on - 20 mg/m³. Lead production is exceptional which emission is limited to 10 mg/m³.

2. Sulphur oxide's emission from the working plants is limited to 3000 mg/m³ till 1995 and for the new plants working after 1995 and on with mass flow of 5 kg/m³ and more - 800 mg/m³.

Article 25.

Production of cast iron, steel, ferrous alloys and founding activities:

1. Dust - dust concentration in gases, discharged from heating units, should not exceed 30 mg/m³ and with non-ferrous metals - 20 mg/m³;

2. Organic compounds in founding activities - concentration of organic compounds in gases should not exceed the standards, determined in Article 17, and aminies' concentration should not exceed 5 mg/m³;

3. Powdered emissions during drying of sand and other processes for preparation or treatment of founding mixtures and cleaning of casts - according to Article 13, paragraph 1.

Article 26.

Melting of aluminium:

1. Dust emissions with mass flow from 0,5 kg/h and more should not exceed 20 mg/m³;

2. Chlorine emission from gases when aluminium is refined should not exceed 3 mg/m³;

3. Emission of organic compounds, determined as hydrogen carbides should not exceed 50 mg/m³.

Article 27.

Production of lead accumulators:

1. Powdered emissions with mass flow of 5 g/h and more should not exceed 0,5 mg/m³;

2. Concentration of sulfuric acid in gases should not exceed 1 mg/m³.

Article 28.

Production and packing of preparations for plant protection - powdered emissions with mass flow of 25 g/h and more should not exceed 5 mg/m³.

Article 29.

Production of sulphur dioxide, sulphur trioxide, sulfuric acid and oleum:

1. Emission of sulphur dioxide should not exceed 2,6 kg. per ton produced 100% sulfuric acid.

2. Emission of sulphur trioxide should not exceed:

a/ 0,6 kg. per ton sulfuric acid for working installations;

b/ 120 mg/m³ - for new units.

Article 30.

Production of sulphurous products by "Clause process":

1. Emissions of sulphurous compounds, determined as sulphur, in weight percents from the processed quantity of Sulphur per day, should not exceed:

a/ 3% if to 20 t. per day inclusive;

b/ 2% if from 21 to 50 t. per day inclusive;

c/ 5% if over 50 t. per day;

2. After burning of the discharged gas or after other treatment emission of hydrogen sulfide should not exceed 10 mg/m³.

Article 31.

Production of 1,2 dichlorethan and vinilchloride - emission of 1,2 dichlorethan as well as the emission of vinilchloride should not exceed 5 mg/m³.

Article 32.

Production of polyvinilchloride (PVC)

Emission of vinilchloride should be maximum limited and averagely per month should not exceed 200 mg/m³ per kilogram produced polyvinilchloride.

Article 33.

1. When process gases are burned, emission of achrylnitril should not exceed 0,2 mg/m³;

2. When process gases are treated by washing, emission of achrylnitril should not exceed 5 mg/m³.

Article 34.

Processing of crude oil and petroleum and production of petroleum products:

1. Combustible units:

a/ the emission of sulphur oxides is determined according to the formula:

E=El(Tg:Tt)+Ell(Tl:Tt), where

El - is a border value during burning of gas - 35 mg/m³;

Ell - is a border value for liquid fuel with heat power to 300 MW - 1700 mg/m³; and with heat power over 300 - 400 mg/m³;

Tg - is the calorific ability of quantity gas fuel per hour;

Tl - is the calorific ability of quantity liquid fuel per hour;

Tt - is the sum of Tg and Tl;

b/ the emission of nitrogen oxides should not exceed 300 mg/m^3 for new units, and for units that are started to work till the end of 1992 - 700 mg/m^3;

c/ emissions refer to 3% volume oxygen content in gases;

2. Depots of crude oil and petroleum products:

a/ preserving of crude oil and petroleum products, which at 20° C have steam pressure over 13 mbar, must be in reservoirs with floating ceilings, in reservoirs with immovable ceilings, connected with the plant's gas camera.

b/ gases from breathing of reservoirs with immovable ceiling obligatory are led in the plant's gas system when preserved products may discharge I class substances, according to Article 17, and from no matter which class is according to Article 18, or when the expected emissions exceed mass flows listed for the rest classes, according to Article 17;

3. Other emission sources:

a/ the discharged organic gases and vapors should be caught up and led in the plant's gas system from where they are fed to burn, by a torch or by another treatment. These requirements refer to safety (safety value) and draining equipment; to regenerating of catalysts; to repair and cleaning of units; to turn on and off of technological lines; to filling of crude oil; to intermediate and end petroleum products which at 20° C have steam pressure over 13 mbar;

b/ emission of hydrogen sulfide - the gases from sulphur reducing installations and other sources are treated when: volume content of hydrogen sulfide exceeds 0,4%; mass flow of hydrogen sulfide is more than 2 tons per twenty four hours. The emission of treated and non-treated gases should not exceed 10 mg/m^3;

c/ treating of process and ballast water - the process and ballast water before discharged in the open system is treated and its gases are reduced. These reduced gases are led to be cleaned or burned.

Article 35.

Production of wooden flatness:

1. Dust emission should not exceed:

a/ 10 mg/m^3 after finishers;

b/ 50 mg/m^3 after drying;

2. Emissions of vaporous and gaseous I class organic substances are according to Article 17; in gases after presses should not exceed 0,12 kg/m^3 per cubic meter produced flatnesses.

Article 36.

Painting and polishing of machines, metal and other articles:

1. Gases from painting cameras should not content particles (lacquer particles) more than 3 mg/m^3. The requirements of Article 17 for I and III class substances are not valid for these gases.

2. Emissions of organic substances in gases from drying cameras, determined as hydrogen carbides, should not exceed 50 mg/m³.

Article 37.

Installations for laying on of cover and printing of textiles and other articles with organic paintings, lacquers and artificial materials:

1. Dust emissions should not exceed 5 mg/m³ when laying on by squirting, and 15 mg/m³ when spraying of powdered substances.

2. Emissions of organic substances, determined as hydrogen carbide should not exceed 150 mg/m³ when more than 10 kg/h solvents are used.

3. When water and ethanol of 25% are used as a solvent, the emission of ethanol should not exceed 500 mg/m³;

4. Emission of organic substances of gases from drying installations, determined as hydrogen carbides, should not exceed 50 mg/m³.

Article 38.

Installations for treating of waste by burning

The concentrations of harmful substances in gases, discharged from installations where solid and other kinds of waste are used as a fuel, should not exceed the values indicated in Application No 7.

Article 39.

When in certain processes and activities are expected emissions of harmful substances, which are not indicated in these standards, the concerned people do the research and offer the Ministry of Environment for approval emission standards for the particular case.

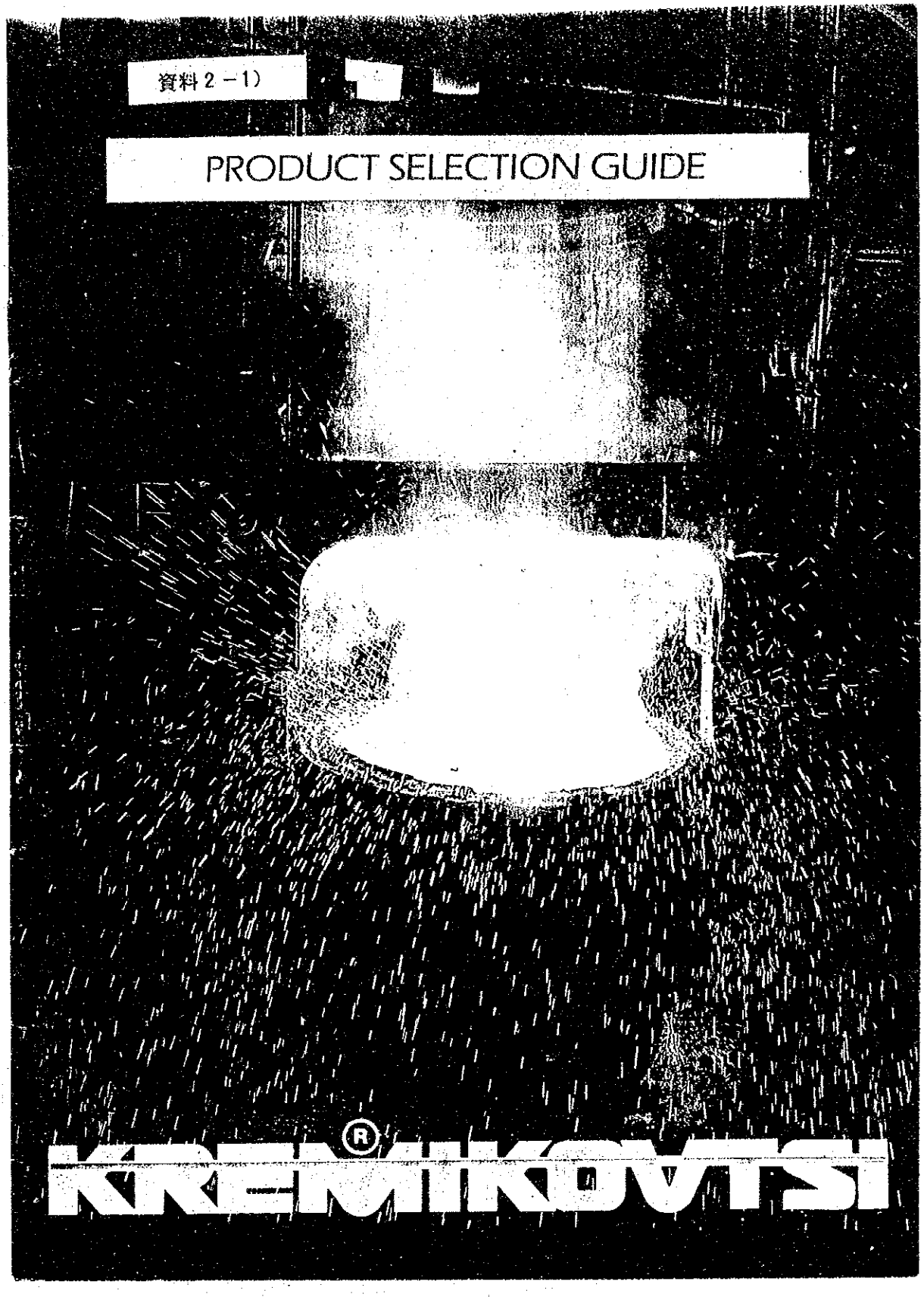
CONCLUDING PROVISIONS

1. The standards are issued on the grounds of Article 4, paragraph 3 from the Regulations for enforcing the Law of air, water and soil protection from pollution. (promulgated in The State Newspaper, 80 issue, 1964, changed and complemented in 1978, 9 issue) and these standards abrogates the Regulation No 1 for the accessible content of harmful substances in gases, discharged in the atmosphere. (State Newspaper, 1986, 7 issue)

2. The standards are co-ordinated with the Ministry of Health by a letter No 04-09-9 from 13 May 1991.

Minister:

D. Vodenicharov


資料２－１）
PRODUCT SELECTION GUIDE
KREMIKOVTSI

СТОМАНА СОРТОВА ГОРЕЩОВАЛЦУВАНА
HOT-ROLLED SECTION STEEL

Горещовалцуван полуфабрикат с приложение за производство на изковки, валцдрат и непосредствено в машиностроенето, строителството и други.

ФОРМА НА ДОСТАВКА

Пръти с квадратно и кръгло сечение в пачки.

МАРКИ СТОМАНА

а) Стомана конструкционна обикновено качество

БДС 2592-71	*DIN 17100-80*
АСт.0	St.33
Ст.1 кп,пс,сп	-
Ст.2 кп,пс,сп	St.37-2
БСт.3 кп	USt.37-2
БСт.3 сп	RSt.37-2
БСт.4кп,пс,сп	-
БСт.5пс, сп	-

б) Стомана качествена конструкционна:

БДС 5785-83	*DIN 17200-87*
10 кп	-
10	C10
20	C22
25	C25
35	C35
45	C45
60	C60

Стомана за топки - *ОН 03353867-86*
(за топкови мелници)

A hot-rolled semi-finished product designed for the manufacture of forgings, wire rod and immediate wide-range application in the engineering industry, the building and construction industry and other industries.

DELIVERED IN

Square and round rods in bundles.

STEEL GRADES

a) Structural, ordinary-quality steel

БДС 2592-71	*DIN 17100-80*
АСт.0	St.33
Ст.1 кп,пс,сп	-
Ст.2 кп,пс,сп	St.37-2
БСт.3 кп	USt.37-2
БСт.3 сп	RSt.37-2
БСт.4кп,пс,сп	-
БСт.5пс, сп	-

b) Structural, high-grade steel

BDS 5785-83	*DIN 17200-87*
10 кп	-
10	C10
20	C22
25	C25
35	C35
45	C45
60	C60

Steel for balls - *ОН 03353867-86*

в) Стомана нисколегирана конструкционна:

БДС 4880-89	*DIN 17102-83*
10Г2САФ	TStE 355
ОН 3353315-82	-
09Г2 БМ	-

г) Стомана легирана конструкционна

БДС 6354-85		
20Х	-	
35Х	34Cr4	*DIN 17200, 1654-89*
40Х	41Cr4	*DIN 17200, 1654-89*
30Г	-	
18ХГТ	-	
30ХГТ	-	
40ХН	40NiCr6	*DIN 17200-87*

ТЕХНИЧЕСКИ ИЗИСКВАНИЯ

В зависимост от предназначението проката се подразделя на две групи:

- Прокат сортов от въглеродна стомана обикновено качество *БДС 6895-82*

I група - за употреба без обработка на повърхността.

II група - за студена механична обработка.

III група - за гореща обработка под налягане.

- Стомана въглеродна качествена конструкционна *БДС 5785-83*

а) За гореща обработка под налягане.

б) Студена механична обработка по цялата повърхност.

в) За студено изтегляне (подкат за калиброване)

РАЗМЕРИ

Стомана кръгла *БДС 2638-85* *DIN 1013/1-78*
Диаметър - *100 - 150 mm*
Дължина - *2 - 12 m*
Стомана квадратна: *БДС 6281-78* *DIN 1014/2-78*

Страна на квадрата: 80 - 120 mm;

Дължина: *2 - 12 m*

ФОРМА НА ДОСТАВКА

Връзки с тегло до 10 t

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

c) Structural low-alloy steel

BDS 4880-89	*DIN 17102-83*
10Г2САФ	TStE 355
OH 3335515-82	-
09Г2 БМ	-

d) Structural alloyed steel

BDS 6354-85		
20Х	-	
35Х	34Cr4	*DIN 17200, 1654-89*
40Х	41Cr4	*DIN 17200, 1654-89*
30	-	
18ХГТ	-	
30ХГТ	-	
40ХН	40NiCr6	*DIN 17200-87*

TECHNICAL REQUIREMENTS

Depending on the application, the rolled products are divided in two groups:

- Rolled sections made of carbon ordinary-quality steel *BDS 6895-82*

1st group - for application without surface working
2st group - for cold working
3rd group - for cold working under pressure

- Carbon, high-grade structural steel *BDS 5785-83*

a) for hot working under pressure
b) for cold working along the entire surface
c) for cold drawing (semi-finished rolled stock for calibrating)

DIMENSIONS

Round steel *BDS 2638085* *DIN 1013/1-78*
Diameter - *100 - 150 mm*
Length - *2 - 12 mm*
Square steel: *BDS 6281-78* *DIN 1014/2-78*

Square side: *80 - 120 mm;*

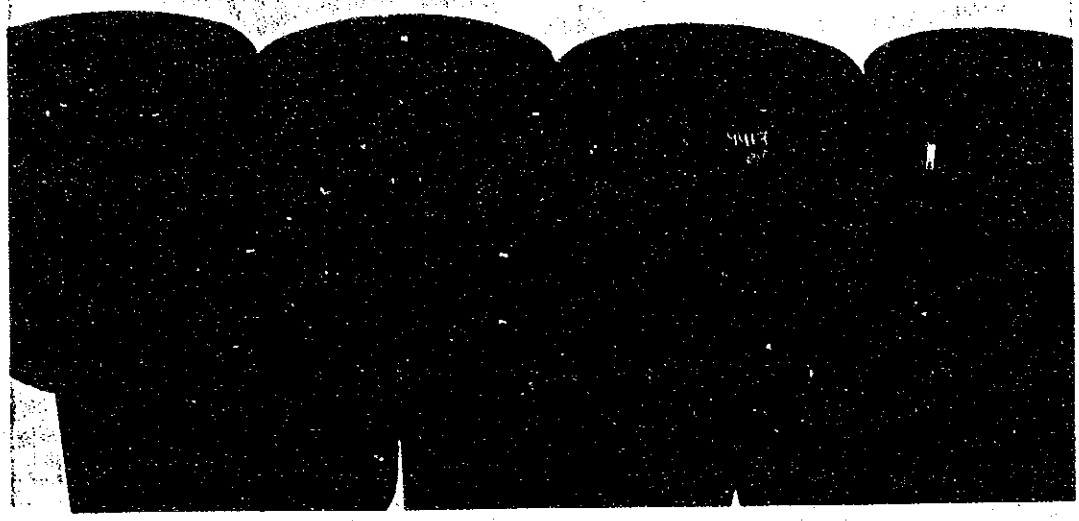
Length: *2 - 12 m*

DELIVERED IN

Bundles of up to *10 t* weight.

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

СТОМАНА ЛЕГИРАНА ГОРЕЩОВАЛЦУВАНА ЛИСТОВА
HOT ROLLED ALLOYED STEEL SHEET



Горещовалцуваната листова стомана с доброто си качество на повърхността и точност на размерите намира широко приложение във всички промишлени отрасли, както като полуфабрикат за производство на спирални и правошевни тръби така и за непосредствено използване.

ФОРМА НА ДОСТАВКА

Рулони
Листове
Щрипси

МАРКИ СТОМАНА

а)Стомани нисколегирани конструкционни

БДС 4880-89	Марки по DIN	
09Г2; 09Г2Б; 09Г2С; 09Г2БФ		
10Г2САФ	TStE 355	*DIN 17102-83*

б) Стомани легирани конструкционни

БДС 6354-85 *БДС 6742-82*	Марки по DIN	No на материала по DIN
15Г	15 Mn 3	1.0467
30Г	30 Mn 4	1.1146
45Г; 50Г; 70Г	-	-
60Г	60 Mn 3	1.0642
65Г	65 Mn 4	1.1240
30ХГСА	-	-

в) Стомани нисколегирани конструкционни с повишена устойчивост на атмосферна корозия

БДС 15888-84	Марка по DIN	
Корат 24	St37-2	*DIN 17100-80*
Корат 30		
Корат 36		

г) Стомани листови корозионно устойчиви

БДС 6738-72 *БДС 11793-74*	Марка по DIN	
X 18 H 9		
X 18 H 9 T	X6CrNiTi 18 10	*DIN 17440*

Due to its good surface quality and precise dimensions, the hot rolled steel finds wide application in all branches of industry both as a semi-finished product for spiral and straight welded pipe production and for immediate application.

FORM OF DELIVERY

Coils
Sheets
Strips

STEEL GRADES

a) Low-alloyed construction steels

BDS 4880-89	Grades to DIN	
09Г2; 09Г2Б; 09Г2С; 09Г2ВФ		
10Г2САФ	TStE 355	*DIN 17102-83*

b) Alloyed construction steels

BDS 6354-85 *BDS 6742-82*	Grades to DIN	No of the material to DIN
15Г	15Mn 3	1.0467
30Г	30Mn 4	1.1146
45Г; 50Г; 70Г	-	-
60Г	60Mn 3	1.0642
65Г	65Mn 4	1.1240
30ХГСА	-	-

c) Low-alloyed construction steels of improved atmospheric corrosion resistance

BDS 15888-84	Grades to DIN	
Korat 24	St37-2	*DIN 17100-80*
Korat 30		
Korat 36		

d) Corrosion resistant steel sheets

BDS 6738-72 *BDS 11793-74*	Grade to DIN	
X 18 H 9		
X 18 H 9 T	X6CrNiTi 18 10	*DIN 17440*

д) Стомани листови за котлостроенето

БДС 5930-76	Марки по DIN	
18К	HIII	
16К	HII	*DIN 17155*

е)Стомани конструкционни за машиностроенето

ОН 33-53515-82 09Г2Б-М

ж) Стомани електротехнически нисковъглеродни магнитномеки

Армко	*БДС 10112-72*	*DIN 17405*
	E 12	RFe120
	E 10	RFe100

РАЗМЕРИ в mm

Листове

	Тънко-листова	Дебело-листова	Рифел
Дебелина	2.0-2.8	3.0-12.0	3.0-8.0
Ширина	600-1500	600-1500	600-1500
Дължина	2000-6000	2000-6000 /8000/	2000-6000 /8000/
Височина на рифа			0.2-0.3mm от дебелината на основата на листа, но не по-малко от 0.5mm

Допустими отклонения	*БДС 3992-84* *DIN 1016-87*	*БДС 3992-84* *DIN 1543-81*	*БДС 9328-80* *DIN 59220-83*

Рулони

Дебелина -	*2.0 - 12.0*
Ширина -	*600 - 1500*
Външен диаметър -	*1100 - 1900*
Вътрешен диаметър -	*850*
Допустими отклонения	*БДС 3992-84* *DIN 1016-87*

Щрипси

Дебелина -	*3.0 - 6.0*
Ширина -	*200 - 600*
Външен диаметър на рулона -	*1100 - 1900*
Вътрешен диаметър на рулона -	*740*
Допустими отклонения	*БДС 3992-84* *DIN 1016-87* *БДС 5928-85*

ДОСТАВНО ТЕГЛО

Пачки	*от 5 до 15 t*
Рулони	*до 15 t*

КАЧЕСТВО НА ПОВЪРХНОСТТА

За листове, рулони и щрипси - байцвана, промаслена, непромаслена и необработена.

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

e) Boiler sheet steels

BDS 5930-76	Grade to DIN	
18K	HIII	
16K	HII	*DIN 17155*

f) Construction steels for machinebuilding

OH 33-53515-82 09Г2Б-M

g) Electric low-carbon magnetically soft steels

Armco	*BDS 10112-72*	*DIN 17405*
	E 12	RFe120
	E 10	RFe100

SIZES in mm

Sheets

	Thin sheets	Plates	Corrugated
Thickness	2.0-2.8	3.0-12.0	3.0- 8.0
Width	600-1500	600-1500	600-1500
Length	2000-6000	2000-6000 /8000/	2000-6000 /8000/
Corrugation height			0.2-0.3mm of the sheet base thickness but not less than 0.5mm

Tolerances	*BDS 3992-84* *DIN 1016-87*	*BDS 3992-84* *DIN 1543-81*	*BDS 9328-80* *DIN 59220-83*

Coils

Thickness	*2.0 - 12.0*	
Width	*600 - 1500*	
OD	*1100 - 1900*	
ID	*850*	
Tolerances to	*BDS 3992-84*	*DIN 1016-87*

Strips

Thickness	*3.0 - 6.0*	
Width	*200 - 600*	
OD	*1100 - 1900*	
ID	*740*	
Tolerances to	*BDS 3992-84* *BDS 5928-85*	*DIN 1016-87*

DELIVERED WEIGHT

In bundles	Single weight of *5 to 15 t*
In coils	Single weight *up to 15 t*

SURFACE QUALITY

For sheets, coils and strips - pickled, oiled, not-oiled and untreated.

NOTE: Final delivery conditions agreed upon order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

ГОРЕЩОВАЛЦУВАНИ ЩРИПСИ
HOT-ROLLED STRIPS

Произвеждат се от стомана горещовалцувана дебелолистова надлъжно нарязана по размер в зависимост от предназначението. Намира приложение в много промишлени отрасли като за пр-во на ел.заварени тръби, въздуховоди, тръби спирално-заварени и др.

ФОРМА НА ДОСТАВКА

Рулони

МАРКИ СТОМАНА

а) Стомани въглеродни конструкционни - обикн. качество

БДС 2592-71	*DIN 17100-80*
Ст.3кп,сп	USt 37-2, RSt 37-2

б) Стомани въглеродни качествени конструкционни

БДС 5785-83	
Ст.08кп	St22 *DIN 1614-86/1*
Ст.10	C10 *DIN 17210-86*

РАЗМЕРИ

Дебелина	*3.0 - 6.0 mm*
Ширина	*200 - 600 mm*
Вътрешен диам. на рулона	*740 mm*
Външен диам. на рулона	*1100 - 1900 mm*
Допустими отклонения по:	
БДС 3992-84	*DIN 1016-87*
БДС 5928-85	

ДОСТАВНИ ТЕГЛА

Единично тегло на 1 руло - *1.5 - 6.0 t*
Опаковка - от 3 до 5 рула - *до 15 t*

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

They are manufactured from hot-rolled thick-sheet steel, cut lengthwise as per a specified size depending on the purpose. Find application in many industries for production of electrical welded pipes, air-piping pipes, spiral welded pipes etc.

FORM OF DELIVERY

Coils

STEEL GRADES

a) Carbon structural, ordinary-quality steels

BDS 2592-71	*DIN 17100-80*
Ст.3кп,сп	USt 37-2, RSt 37-2

b) Carbon structural, high-grade steels

BDS 5785-83	
Ст.08кп	St22 *DIN 1614-86/1*
Ст.10	C10 *DIN 17210-86*

DIMENSIONS

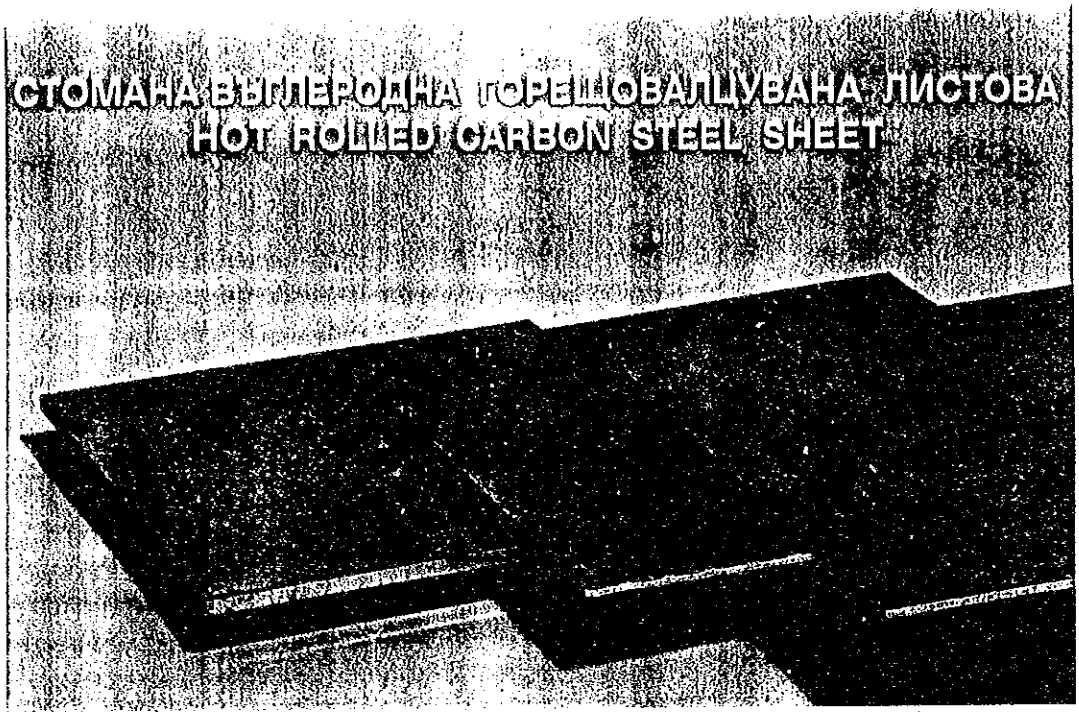
Thickness	*3.0 - 6.0 mm*
Width	*200 - 600 mm*
ID	*740 mm*
OD	*1100 - 1900* mm
Tolerances to:	
BDS 3992-84	*DIN 1016-87*
BDS 5928-85	

DELIVERED WEIGHT

Single coil weight	*1.5 - 6.0 t*
Bundle - from 3 to 5 coils	*up to 15 t*

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

СТОМАНА ВЪГЛЕРОДНА ГОРЕЩОВАЛЦУВАНА ЛИСТОВА
HOT ROLLED CARBON STEEL SHEET



Горещовалцуваната листова стомана с доброто си качество на повърхността и точност на размерите намира широко приложение във всички промишлени отрасли, като полуфабрикат за производство на спирални и правошевни тръби, така и за непосредственото използване.

ФОРМА НА ДОСТАВКА

Рулони
Листове
Щрипси

МАРКИ СТОМАНА

а) Стомани въглеродни конструкционни - обикновено качество

Марка по *БДС 2592-71*	Марка по *DIN 17100-80*
Ст.0; Ст.1	St.33
Ст.2; Ст.3	St.37.2
Ст.3кп	USt.37-2
Ст.3пс, сп	RSt.37-2
Ст.4; Ст.5пс, сп; Ст.6сп	

б) Стомани въглеродни качествени конструкционни

Марка по *БДС 5785-83*	Марка по DIN	DIN
1	2	3
08; 08кп; 08пс	St.22, USt.23	1614-86/1
10	C10	17210
15	C15	17210
10кп, пс; 15кп, пс	-	-
20	C22	17200
20кп, 20 пс	-	-
25	C25	17200

Due to its good surface quality and precise dimensions, the hot rolled steel sheet finds wide application in all branches of industry as a semi-finished product for the production of spiral and straight welded pipes and for immediate use.

FORM OF DELIVERY

Coils
Sheets
Strips

STEEL GRADES

a) Carbon structural steels - of ordinary quality

Steel grade to *BDS 2592-71*	St.grade to *DIN 17100-80*
Ст.0; Ст.1	St.33
Ст.2; Ст.3	St.37.2
Ст.3кп	USt.37-2
Ст.3пс, сп	RSt.37-2
Ст.4; Ст.5пс, сп; Ст.6сп	

b) Carbon high-grade structural steels

St.grade to *BDS 5785-83*	St.grade to DIN	DIN
1	2	3
08; 08кп; 08пс	St.22; USt.23	1614-86/1
10	C10	17210
15	C15	17210
10кп, пс; 15кп, пс	-	-
20	C22	17200
20кп, 20 пс	-	-
25	C25	17200

1	2	3
30	C30	17200
35	C35	17200
40	C40	17200
45	C45	17200
50	C50	17200
55	C55	17200
60	C60	17200

в) Стомана листова горещовалцувана за дълбоко изтегляне

Марка по *ОН 33-60281-87* Марка по *DIN 1614-1/86*
08Ю RRSt23 RRSt24

РАЗМЕРИ в mm

Листове

	Тънко-листова	Дебело-листова	Рифел
Дебелина	2.0-2.8	3.0-12.0	3.0-1.0
Ширина	600-1500	600-1500	700-1500
Дължина	2000-6000	2000-6000 /8000/	2000-6000 /8000/
Височина на рифа	-	-	0.2-0.3 mm от дебелината на основата на листа, но не по-малко от 0.5mm
Допустими отклонения по	*БДС 3992-84 DIN 1016-87*	*БДС 3992-84 DIN 1543-81*	*БДС 9328-80 БДС 3992-84 DIN 59220-83*

Рулони

Дебелина	*2.0 - 12.0*
Ширина	*600 - 1500*
Външен диаметър	*1100 - 1900*
Вътрешен диаметър	*850*

Допустими отклонения по *БДС 3992-84 DIN 1016-87*

Щрипси

Дебелина	*3.0 - 6.0*
Ширина	*200 - 600*
Външен диаметър на рулона	*1100 - 1900*
Вътрешен диаметър на рулона	*740*

Допустими отклонения по *БДС 3992-84, DIN 1016-87 БДС 5928-85*

ДОСТАВНО ТЕГЛО

Пачки	*от 5 до 15 t*
Рулони	*до 15 t*

КАЧЕСТВО НА ПОВЪРХНОСТТА

За листове, рулони и щрипси - байцвана, промаслена, непромаслена и необработена.

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката.Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

1	2	3
30	C30	17200
35	C35	17200
40	C40	17200
45	C45	17200
50	C50	17200
55	C55	17200
60	C60	17200

c) Hot rolled steel sheets for deep drawing

Grade to *OH 33-60281-87* Grade to *DIN 1614-1/86*
08Ю RRSt23 RRSt24

SIZES in mm

Sheets

	Thin sheets	Plates	Corrugated
Thickness	2.0- 2.8	3.0-12.0	3.0-1 0
Width	600-1500	600-1500	700-1500
Length	2000-6000	2000-6000 /8000/	2000-6000 /8000/
Corrugation	-	-	0.2-0.3 mm of the height base sheet thick-ness, but not less than 0.5mm
Tolerances according to	*BDS 3992-84 DIN 1016-87*	*BDS 3992-84 DIN 1543-81*	*BDS 9328-80 BDS 3992-84 DIN 59220-83*

Coils

Thickness	*2.0 - 12.0*	
Width	*600 - 1500*	
OD	*1100 - 1900*	
ID	*850*	
Tolerances to	*BDS 3992-84*	*DIN 1016-87*

Strips

Thickness	*3.0 - 6.0*	
Width	*200 - 600*	
OD	*1100 - 1900*	
ID	*740*	
Tolerances to	*BDS 3992-84 BDS 5928-85*	*DIN 1016-87*

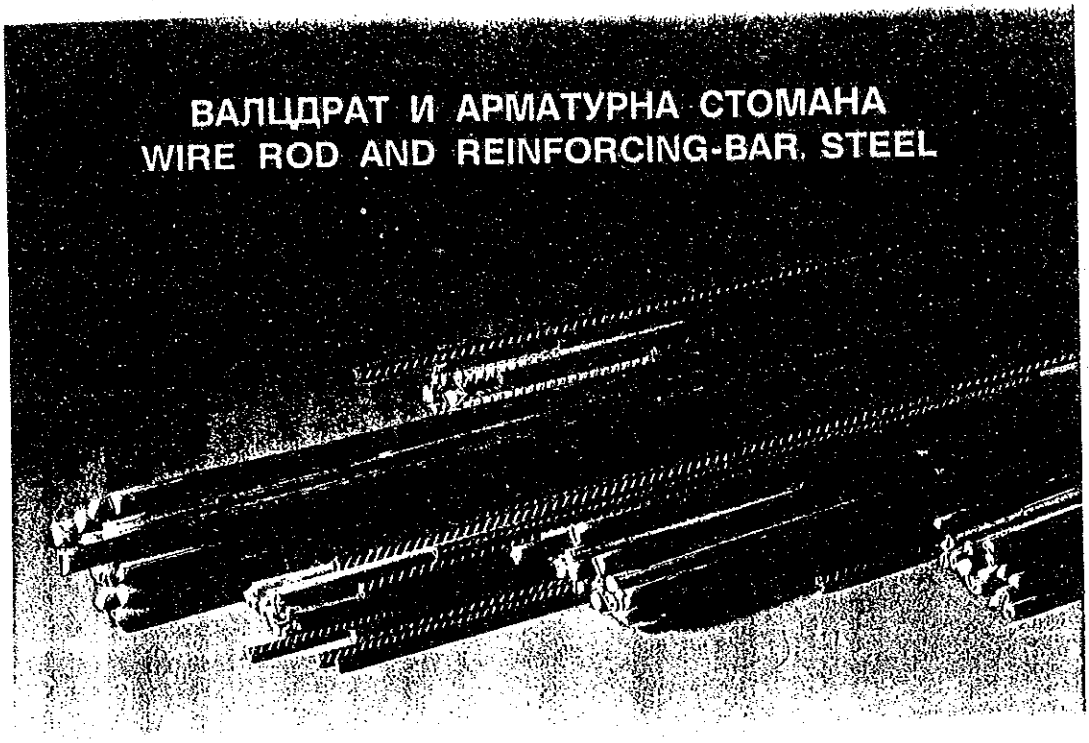
DELIVERED WEIGHT

In bundles	*from 5 up to 15 t*
In coils	*up to 15 t*

SURFACE QUALITY

For sheets, coils and strips - pickled, oiled, not oiled and untreated.

NOTE: Final delivery conditions as agreed upon order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.



Полуфабрикат получен от горещовалцуване на квадратна заготовка /кнюпел/ предназначен за последващо изтегляне на телове. Телове за гвоздеи и въжета, както и за непосредствено ползване в строителството, машиностроенето и пр.

A semi-finished product produced by hot rolling of a square billet designed for subsequent drawing of wires, wires for nails and ropes as well as for direct usage in the construction and building industry, the engineering industry, etc.

ФОРМА НА ДОСТАВКА

Кангала и пръти в пачки

DELIVERED IN

Coils and rods is bundles

МАРКИ СТОМАНА

а) Валцдрат об.к-во БДС 4633-82

БДС 2592-71	*DIN 17100-80, DIN 17140-83*
БСт.0, БСт.1, БСт.2	St 37.2
БСт.3 от всички	USt 37.2
степени на откисляване	RSt 37.2

б) Валцдрат качествени констр.стомани

ОН 33-76234-88	*DIN 17200-87*
ОН 3370784-88	*DIN 17140-83*
БДС 5785-83	*DIN 17111-80* и по споразумение

в) Валцдрат за студено изтегляне на тел стоманен заваръчен

ОН 3354611-87	*DIN 17145-80*
Зв-08А, Зв-08ГА	USD7
Зв-08Г2С, Зв08ГС	10MnSi 5 и по споразумение
Зв-08Г1СТЮ, Зв08Г1С	

STEEL GRADES

a) Wire rod, ordinary - quality BDS 4633-82

BDS 2592-71	*DIN 17100-80, DIN 17140-83*
БСт.0, БСт.1,	St 37.2
БСт.2, БСт.3	USt 37.2
from all degrees	RSt 37.2
of deoxidation	

b) Wire rod, high-grade structural steel

OH 33-76234-88	*DIN 17200-87*
OH 3370784-88	*DIN 17140-83*
BDS 5785-83	*DIN 17111-80* and upon agreement

c) Wire rod designed for cold drawing of welding steel wire

OH 3354611-87	*DIN 17145-80*
Зв-08А, Зв-08ГА	USD7
Зв-08Г2С, Зв08ГС	10MnSi 5 and upon agreement
Зв-08Г1СТЮ, Зв08Г1С	

г) Стомана за армиране на бетонни конструкции

БДС 2592-71, БДС4758-84	*DIN 17100-80*
АСт.3, ВСт.3	St 37.2
от всички степени на	USt 37.2
откисление	RSt 37.2

д) Стомана ниско въглеродна, студеноизтеглена оребрена за армиране на стоманобетонни конструкции тип Вч-I, ОН 33 81102-87

БДС 2592-71, ОН 33 81102-87	*DIN 488/1,4*
АСт.3, ВСт.3	BSt 420S
от всички степени	BSt 500S
на откисление	

РАЗМЕРИ

БДС 4633-82 *DIN 1013*
БДС 2638-85 *DIN 59110*
ОН 3376234-88
ОН 3381102-87
ОН 3370784-88

Гладък профил - кангали

Диаметри - *Ø6.5; Ø8; Ø10; Ø12 mm*

Периодичен студеноуякчен профил - кангали и пръти

Диаметри - номинален - *Ø6.5; Ø8; Ø10; Ø12 mm*

Дължини пръти - *3 m go 12 m* по споразумение

ТЕГЛО

Кангали	*go 550 kg*
Пръти (сноп)	*по договаряне*

ДОПУСТИМИ ОТКЛОНЕНИЯ ПО ДИАМЕТЪР И ОВАЛНОСТ

Отклонения от диаметъра *± 0.5 mm*
от овалността *go 0.5 mm*

ЗАБЕЛЕЖКА: Окончателнитеусловия надоставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

d) Steel for reinforcement of concrete structures

BDS 2592-71, BDS 4758-84	*DIN 17100-80*
ACт.3, BCт.3	St 37.2
from all degrees	USt 37.2
of deoxidation	RSt 37.2

e) Low-carbon, cold-drawn, ribbed steel, for reinforcement of reinforced concrete structures, type Вч-I, ОН 33 81102-87

BDS 2592-71, ОН 33 81102-87	*DIN 488/1,4*
ACт.3, BCт.3	BSt 420S
from all degrees	BSt 500S
of deoxidation	

DIMENSIONS

BDS 4622-82 *DIN 1013*
BDS 2638-85 *DIN 59110*
ОН 3376234-88
ОН 3381102-87
ОН 3370784-88

Smooth profile - coils

Diameters - *Ø6.5; Ø8; Ø10; Ø12 mm*

Non-continuous cold-strengthened profile - coils and rods

Diameters - nominal - *Ø6.5; Ø8; Ø10; Ø12 mm*

Rod lengths - *3 m up to 12 m,* upon agreement

WEIGHT

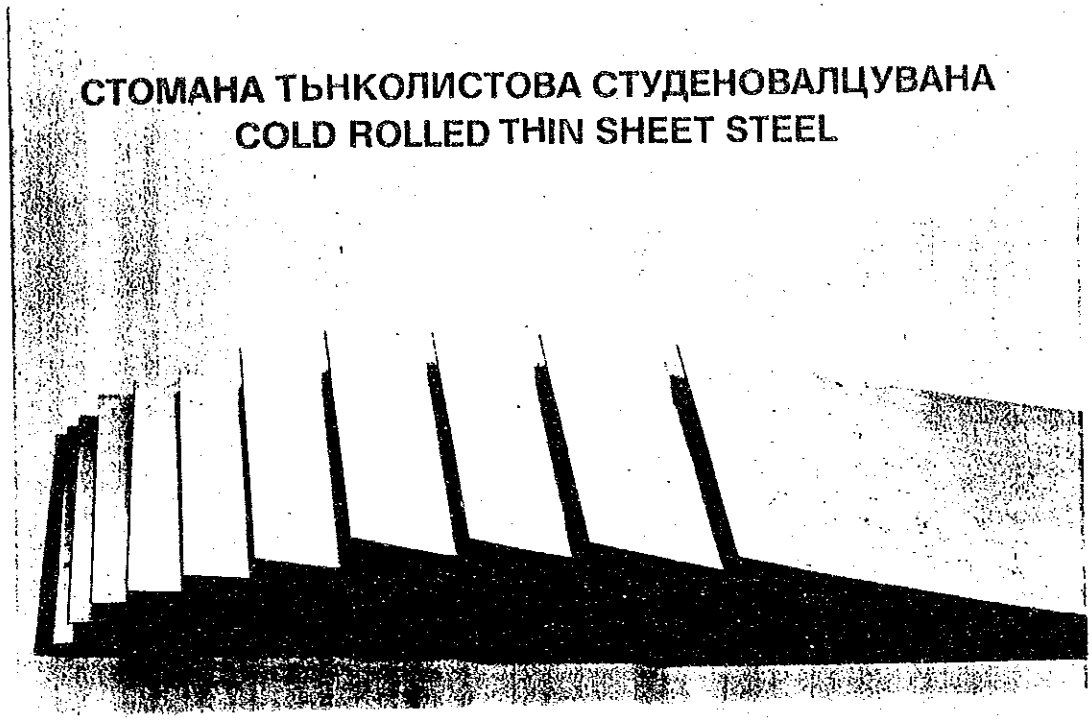
Coils	*up to 550 kg*
Rods (bundle)	*upon agreement*

ADMISSIBLE DEVIATIONS IN DIAMETER AND OVALITY

Deviations from diameter *± 0.5 mm*
from ovality *up to 0.5 mm*

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

СТОМАНА ТЬНКОЛИСТОВА СТУДЕНОВАЛЦУВАНА
COLD ROLLED THIN SHEET STEEL



Притежава високи качества за деформация, точност на размерите и равномерна повърхнина. Има универсално приложение и се явява като крайно изделие за металургичната промишленост.

This material features high deformation capabilities, size precision and uniform surface. It finds universal application and is a final metallurgical product.

МАРКИ СТОМАНА

а) Студеновалцувани листове и рулони от нелегирани качествени и обикновено качество марки стомана с общо предназначение (използват се като конструкционен материал, включително за нормално и дълбоко изтегляне) по *БДС 4558-86*

- качествени	
БДС 5785-83	*DIN 1623-83/1; DIN 1623-86/2,3*
08 08кп 08пс	St.12; EK-2; ED-3
20 20кп 20пс	St.37-2G USt.37-2G

-обикновено качество	
по *БДС 2592-71*	*DIN 1623-87/2*
(с изключение	St.37-3G St.44-3G
на Ст.5 и Ст.6)	St.37-2 USt.37-2G

б) Листова студеновалцувана от нисковъглеродна качествена стомана за студена щамповка

БДС 11488-83	*DIN 1623-83/1,2*
08юА	RRSt.13
08кпА	USt.13

в) Ламарина черна, студено валцувана (черно тенеке)

БДС 5176-75		*DIN 1616-84*
Чл-1	08кп, 08пс	T50
	10кп	T52
	по *БДС 5176-75*	

STEEL GRADES

a) cold rolled sheets and coils of nonalloyed high-quality and ordinary steel grades of general purpose (used as construction material, normal and deep drawing applications included) to *BDS 4558-86*

- quality	
BDS 5785-83	*DIN 1623-83/1; DIN 1623-86/2,3*
08 08кп 08пс	St.12; EK-2; ED-3
20 20кп 20пс	St.37-2

-ordinary quality	
to *BDS 2592-71*	*DIN 1623-87/2*
(with the exception	St.37-3G St.44-3G
of Ст.5 and Ст.6)	St.37-2 USt.37-2G

b) Cold rolled sheets of low-carbon high-grade steel for cold stamping

BDS 11488-83	*DIN 1623-83/1,2*
08юА	RRSt.13
08кпА	USt.13

c) Black plate, cold rolled

BDS 5176-75		*DIN 1616-84*
Чл-1	08кп,08пс	T50
	10кп	T52
	to *BDS 5176-75*	

Чл-2	08кп, 08пс 10кп по *БДС 5785*	T57 T61, T65
Чл-3	по *БДС 5785* и Ст.1кп по *БДС 2592*	от T50 до T70

РАЗМЕРИ

Листове

БДС 6903-83; DIN 1541-75

Дебелина	*0.5 - 2.5 mm*
Широчина	*720 - 1250 mm*
Дължина	*2000, 2500, 3018 mm*
Тегло на пакета	*go 5.0 t*

БДС 5176-75 ; DIN 1616-78

Дебелина	*0.22 - 0.5 mm*
Формат	*512/712 и по споразумение*
Тегло на пакета	*go 1.5 t*

Рулони

БДС 6903-83

Дебелина	*0.5 - 2.5 mm*
Широчина	*720 - 1250 mm*
Вътрешен диаметър на рулона	*Ø300 и Ø600 mm*
Тегло на рулона	*go 10 t и по споразумение*
Допуски съгласно:	
БДС 6903-83	*DIN 1541-75*
БДС 5176	*DIN 1616-78*

СЪСТОЯНИЕ НА ПОВЪРХНОСТТА

ГЛ - гланцова - *БДС 5176-75*
М - матова
Г - грапава - *БДС 4558-86, БДС 11488-83 DIN 1623-83*

КАЧЕСТВО НА ПОВЪРХНОСТТА

		DIN 1623-83/1
II група - високо к-во	БДС 4558-86	GR.03
III група - повишено к-во	БДС 11488-83	GR.03
Чл-1; Чл-2	БДС 5176-75	I к-во DIN 1616-78
Чл-3	БДС 5176-75	II к-во DIN 1616-78

ЗАБЕЛЕЖКА: Окончателнитеусловия надоставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

Чл-2	08кп, 08пс 10кп to *BDS 5785*	T57 T61, T65
Чл-3	to *BDS 5785* and Ст.1кп to *BDS 2592*	from T50 to T70

SIZES

Sheets

BDS 6903-83; DIN 1541-75

Thickness	*0.5 - 2.5 mm*
Width	*720 - 1250 mm*
Length	*2000, 2500, 3018 mm*
Bundle weight	*up to 5.0 t*

BDS 5176-75; DIN 1616-78

Thickness	*0.22 - 0.5 mm*
Format	*512/712 and as agreed upon*
Bundle weight	*up to 1.5 t*

Coils

BDS 6903-83

Thickness	*0.5 - 2.5 mm*
Width	*720 - 1250 mm*
Coil ID	*Ø300 and Ø600 mm*
Coil weight	*up to 10 t and as agreed upon*
Tolerances to:	
BDS 6903-83	*DIN 1541-75*
BDS 5176	*DIN 1616-78*

SURFACE CONDITION

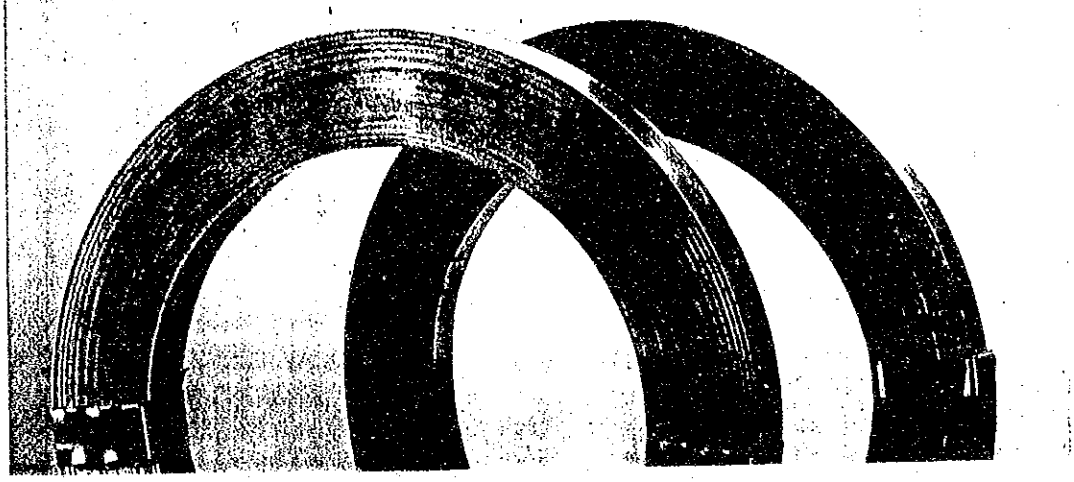
GL - Bright *BDS 5176-75*
M - Dull
G - Rough *BDS 4558-86, BDS 11488-83 DIN 1623-83*

SURFACE QUALITY

		DIN 1623-83/1
II Group - High quality	BDS 4558-86	Gr.03
III Group - Improved quality	BDS 11488-83	Gr.03
Чл-1, Чл-2	BDS 5176-75	I qual. DIN 1616-78
Чл-3	BDS 5176-75	II qual. DIN 1616-78

NOTE: Final delivery conditions as agreed upon order.Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

ЛЕНТА СТОМАНЕНА СТУДЕНОВАЛЦУВАНА
COLD-ROLLED STEEL STRIP



Произвежда се от стомана студеновалцувана тънколистна, надлъжно нарязана по размер в зависимост от предназначението на лентата. Намира приложение почти във всички промишлени отрасли за опаковка, бронирване на кабели, атрактивни и строителни материали и др., включително за дълбоко и нормално изтегляне.

It is manufactured from cold-rolled thin-sheet steel, cut lengthwise as per a specified size depending on the purpose of the strip. It is used in almost all industries for packing, cables armouring, attractive and building materials, etc., including for deep and normal drawing.

ФОРМИ НА ДОСТАВКА

Рулони (Рула)

DELIVERED IN

Coils (Rolls)

КЛАСИФИКАЦИЯ

а) По качество на повърхността

БДС 15018-80	*DIN 1623/1*
I група - високо качество	0.5
II група - повишено качество	0.3
III група - обикновено качество	

б) По изтегляемост *БДС 15018-80*

За нормално изтегляне (Н)
Сложно изтегляне (С)
Дълбоко изтегляне (Д)
Особено дълбоко изтегляне (ОД)

в) По точност на изработване *БДС 15018-80*

Повишена точност (П)
Обикновена точност (О)

г) По състояние на материала

БДС 15018-80 *DIN 1623-83/1*

Особено мека (ОМ); Мека (М);
Полутвърда (ПТ); Твърда (Т);
Особено твърда (ОТ).

CLASSIFICATION

a) As per surface quality

BDS 15018-80	*DIN 1623/1*
1st group - high quality	0.5
2nd group - increased quality	0.3
3rd group - ordinary quality	

b) As per drawability *BDS 15018-80*

For normal drawing (H)
Complex drawing (C)
Deep drawing (Д)
Particularly deep drawing (ОД)

c) As per precision of manufacture *BDS 15018-80*

Increased precision (П)
Ordinary precision (O)

d) As per condition of materials

BDS 15018-80 *DIN 1623-83/1*

Particularly soft (OM); Soft (M);
Semi-hard (ПТ); Hard (T);
Particularly hard (OT).

Състояние на материала Condition of material	Марка стомана Steel grade	Механични свойства Mechanical properties			
		Якост на опън, Tensile strength,	Относително удължение, % не по-малко от Specific elongation,% not less than		
		N/mm²	до 1.5 max 1.5	1.5 - 2.0 1.5 - 2.0	над 2.0 over 2.0
ОМ	08кп; 08пс; 10кп	250-400	23	26	30
М	08кп; 10кп; 08пс 10пс; 08; 10	300-450	17	18	20
ПТ		350-500	7	9	10
Т		420-600	не се определя not determined		4
ОТ	08кп; 10кп; 08пс 10пс; 08; 10 Ст.1кп, Ст.2кп, Ст.3кп.	500-600	не се определя not determined		

РАЗМЕРИ

БДС 15018-80 *DIN 1541-75*
Дебелина - *0.22 - 2.5 mm*
Ширина - *10 - 500 mm*
Вътрешен диаметър на рулона - *300 - 600 mm*

ДОСТАВНИ ТЕГЛА

Пакет от рула - *go 5 t*

DIMENSIONS

BDS 15018-80 *DIN 1541-75*
Tickness - *0.22 - 2.5 mm*
Width - *10 - 500 mm*
Internal diameter of coil - *300 - 600 mm*

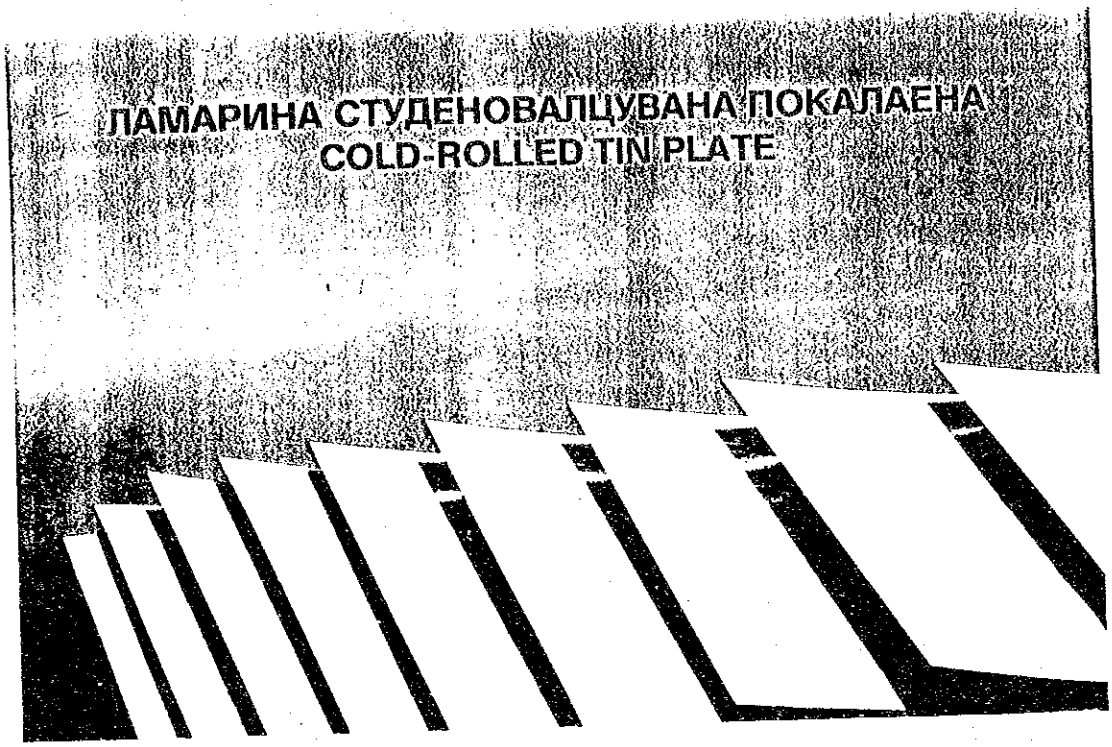
DELIVERED IN WEIGHTS OF

Bundle of coils - *up to 5 t*

ЗАБЕЛЕЖКА: Окончателнитеусловия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

ЛАМАРИНА СТУДЕНОВАЛЦУВАНА ПОКАЛАЕНА
COLD-ROLLED TIN PLATE



Полуфабрикат от студеновалцувана тънколистна стоманена лента със защитно двустранно калаено електролитно покритие предназначена за производство на метални опаковки и други цели.

A semi-finished product made of a cold- rolled thin sheet steel strip with a protective two-side tin electrolytic coating, designed for manufacture of metallic packings and other purposes.

ФОРМА НА ДОСТАВКА

Пачки

DELIVERED IN

Bundles

МАТЕРИАЛ ЗА ОСНОВА

а) Студеновалцувана нисковъглеродна стомана по *БДС 5785-83* *DIN 1623-83*

б) Калаено покритие по *БДС 6858-82* *DIN 1616-84* *EN 145*

MATERIAL USED AS BASIS

a) Cold-rolled low-carbon steel as per *BDS 5785-83* *DIN 1623-83*

b) Tin coating as per *BDS 6858-82* *DIN 1616-84* *EN 145*

МАСА НА ПОКРИТИЕТО - g/m²

Клас	Номинална	Стр.А/Стр.Б	Минимална
I	5.6	2.8/2.8	4.9
II	11.2	5.6/5.6	10.5
III	16.8	8.4/8.4	15.7
IV	22.4	11.2/11.2	20.2
IX	8.4	5.6/2.8	4.75/2.25
X	11.2	8.4/2.8	7.85/2.25
XI	14.0	8.4/5.6	7.85/4.75
XII	14.0	11.2/2.8	10.1/2.25
XIII	16.8	11.2/5.6	10.1/4.75

WEIGHT OF COATING - g/m²

Class	Nominal	Side A/side B	Minimum
I	5.6	2.8/2.8	4.9
II	11.2	5.6/5.6	10.5
III	16.8	8.4/8.4	15.7
IV	22.4	11.2/11.2	20.2
IX	8.4	5.6/2.8	4.75/2.25
X	11.2	8.4/2.8	7.85/2.25
XI	14.0	8.4/5.6	7.85/4.75
XII	14.0	11.2/2.8	10.1/2.25
XIII	16.8	11.2/5.6	10.1/4.75

РАЗМЕРИ - *БДС 6858-82*

а) Дебелина - *0.22; 0.24; 0.25; 0.26; 0.28; 0.30; 0.32; 0.36 mm*

б) Формат - *537/694; 512/712; 620/ 724; 720/ 752; 535/765; 650/765; 650/778; 550/790; 720/730*

Допускат се и други размери по споразумение.

Рулони - доставка по споразумение

ДОПУСТИМИ ОТКЛОНЕНИЯ

Дебелина на листа, *mm*	Отклонения, *mm*
0.22; 0.24; 0.26; 0.28	+0.01 - 0.02
0.30; 0.32; 0.36	±0.02

Дължини и ширини - по споразумение.

ТВЪРДОСТ

Степен	По Роквел скала HRT 30 с диамантена подложка
А	48 - 56
В	54 - 61
С	57 - 65
Д	66 - 73

Изтегляемост по Ериксен *БДС 6858-82.*

ДОСТАВНИ ТЕГЛА

Пачки с тегло от *800 - 1150 kg* в зависимост от формата.

Възможност за маса на пакета до *1500 kg* при дължина на листите над *800 mm.*

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

DIMENSIONS - *BDS 6858-82*

a) Thickness - *0.22; 0.24; 0.25; 0.26; 0.28; 0.30; 0.32; 0.36 mm*

b) Format - *537/694; 512/712; 620/ 724; 720/ 752; 535/765; 650/765; 650/778; 550/790; 720/730.*

Other dimensions are also provided upon agreement.

Coils - delivery upon agreement.

PERMISSIBLE DEVIATIONS

Sheet thickness, *mm*	Deviations, *mm*
0.22; 0.24; 0.26; 0.28	+0.01 - 0.02
0.30; 0.32; 0.36	±0.02

Lengths and widths - upon agreement.

HARDNESS

Degree	Under Rockwell scale HRT 30 with diamond pad
A	48 - 56
B	54 - 61
C	57 - 65
D	66 - 73

Erichsen cupping - *BDS 6858-82.*

DELIVERED IN WEIGHTS OF

Bundles - *800 - 1150 kg* depending on the form.

Possibility for weight of the bundle up to *1500 kg* at sheet length exceeding *800 mm.*

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.

ГОРЕЩО ПОЦИНКОВАНА ТЪНКА ЛАМАРИНА
HOT-DIPPED GALVANIZED THIN STEEL SHEET

Горещо поцинкованата тънка ламарина предлага добра антикорозийна защита и по този начин осигурява висока продължителност на живот на крайното изделие.
Тази ламарина се обработва лесно и може в съответствие със специфичните си качества да се пресова, щанцова, изтегля, профилира, да се заварява точково и релефно, да се запоява и пребъва.

The hot-dipped galvanized thin sheet offers good corrosion protection and thus ensures a long service life of the final product.
This sheet is easy for treatment and depending on its specific properties it can be pressed, stamped, drawn, profiled, spot and relief welded, soldered and bent.

ФОРМА НА ДОСТАВКА

Рулони
Листове

FORM OF DELIVERY

Coils
Sheets

МАРКИ СТОМАНА

Марки по *БДС 2592-71*	*DIN 17162 част 1*	
(със съдържание на С до 0.22)	*St.02Z*	*St.01Z*
Марки по *БДС 4558-86*	*St.03Z*	*St.04Z*
Марки по *БДС 11488-83*		

STEEL GRADES

To *BDS 2592-71*	*DIN 17162 part 1*	
(C contents up to 0.22)	*St.02Z*	*St.01Z*
Grades as per *BDS 4558-86*	*St.03Z*	*St.04Z*
Grades as per *BDS 11488-83*		

Клас на цинковото покритие - g/m²

БДС 4626-87	*DIN 17162-77*
100; 200; 275; 350; 450; 600	

Zinc coating class - g/m²

BDS 4626-87	*DIN 17162-77*
100; 200; 275; 350; 450; 600	

Вид на покритието

БДС 4626-87	*DIN 17162-77*
Z; ZM; ZE	*N; M; S*

Качество на повърхността

БДС 4626-87	*DIN 17162-77*
Група А; Група Б.	*A; B*

Обработка на повърхността

БДС 4626-87	*DIN 17162-77*
(По искане на потребителя - пасивирана, смазана.)	

РАЗМЕРИ И ТОЛЕРАНСИ

БДС 4626-87	*DIN 17162-77*
	DIN 59232-78

Листове

Дебелина - *0.5 - 1.5 mm*
Ширина - *700 - 1250 mm*
Дължина - *2000 mm*

Рулони

Дебелина - *0.5 - 1.5 mm*
Ширина - *700 - 1250 mm*
Вътрешен диаметър - *600 mm*

ВИД НА ДОСТАВКА

Пачки - *тегло до 5 t*
Рулони - *тегло до 10 t*
Други тегла по споразумение.

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

Type of coating

BDS 4626-87	*DIN 17162-77*
Z; ZM; ZE	*N; M; S*

Surface quality

BDS 4626-87	*DIN 17162-77*
Group A; Group B	*A;B*

Surface treatment

BDS 4626-87	*DIN 17162-77*
(According to customer requirement - passivated, oiled.)	

SIZES AND TOLERANCES

BDS 4626-87	*DIN 17162-77*
	DIN 59232-78

Sheets

Thickness - *0.5 - 1.5 mm*
Width - *700 - 1250 mm*
Length - *2000 mm*

Coils

Thickness - *0.5 - 1.5 mm*
Width - *700 - 1250 mm*
ID - *600 mm*

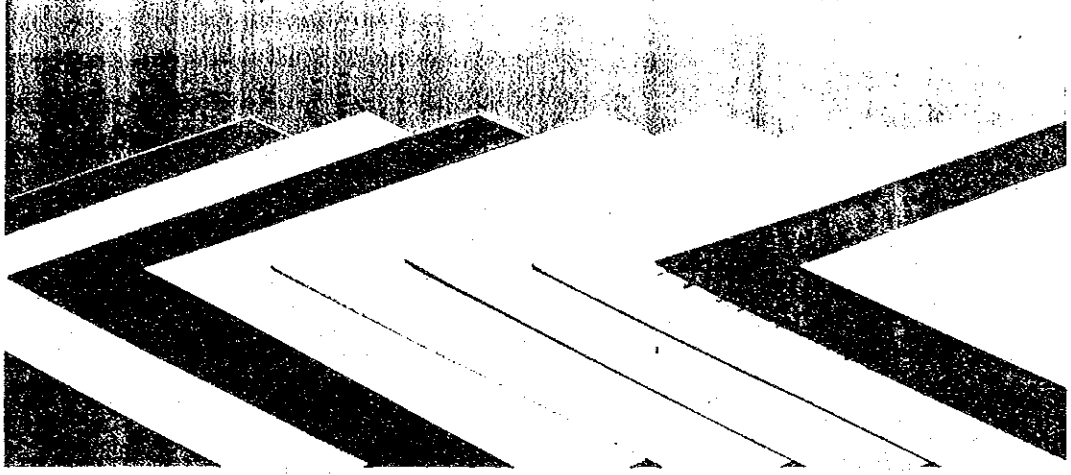
TYPE OF DELIVERY

In bundles - *single weight of up to 5 t*
In coils - *single weight of up to 10 t*
Other weights upon agreement.

NOTE: Final delivery conditions as agreed upon order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer.

ЛАМАРИНА СТОМАНЕНА С ОРГАНИЧНИ ПОКРИТИЯ (МЕТАЛОПЛАСТ)

STEEL SHEET WITH ORGANIC COATING



Студеновалцувана черна и горещопоцинкована ламарина (рулони и лист) покрита с различно оцветени покрития, нанесени по непрекъснат валцов метал "коил кооминг" или чрез лиминирана готово пластмасово фолио. Металопластът е предназначен за изработване на профили, панели, конструкции, табла, корпуси на уреди, за търговско обзавеждане и др.

Cold-rolled black and hot galvanized sheet (in coils and cut-to-length), coated with coatings of different colours continuously or by lamination of prefabricated plastic foil. This material is designed for manufacture of profiles, panels, structures, boards, instrument frames, commercial furnishing, etc.

ФОРМА НА ДОСТАВКА

Лист
Рулони

FORM OF DELIVERY

Sheets
Coils

КЛАСИФИКАЦИЯ

По метална основа

- стоманена *БДС 2592-71* *DIN 17100*
  БДС 4558-78 *DIN 1623-83 част 1*
- стоманена поцинкована
  БДС 4626-87 *DIN 17162*

По вида на покритието

ОН 3373296-88 *Евронорма 169/85*
Лаково(Л); Органозолно(О);
Пластизолно(П); Фолио(Ф)

CLASSIFICATION

According to the Metal Base

- Steel *BDS 2592-71* *DIN 17100*
  BDS 4558-78 *DIN 1623-83, part 1*
- Steel galvanized
  BDS 4626-87 *DIN 17162*

According to the type of coating

Industrial standart *OH3373296-88* *Euronorm 169/85*
Lacquered (L); Organosolic (O);
Plasticsolic (P); Folio (F).

По броя на защитените с окончателно покритие страни

ОН 3373296-88
Едностранно (Л,О,П и Ф)
Двустранно (Л,О и П)

По качество на повърхността

ОН 3373296-88
I група - високо качество (Л,О,П и Ф)
II група - обикновено качество (Л,О,П и Ф)

По вида на повърхността

ОН 3373296-88
Гладка (Г)
Релефна (Р)

По начин на преработка

ОН 3373296-88
За щамповка - нормално (Н), дълбоко (Д)
За профилиране
За рязане

По цвят - каталог RAL

ОН 3373296-88

По степен на сцепление

ОН 3373296-88 т. 4.10

РАЗМЕРИ

БДС 6903-83 *DIN 59232-78*
БДС 4626-87 *DIN 17162-77*

Лист

Дебелина - *0.4 - 1.5 mm*
Ширина - *750 - 1250 mm*
Дължина - *до 5000 mm*

Рулон

Дебелина - *0.4 - 1.5 mm*
Ширина - *750 - 1250 mm*
Вътрешен диаметър - *600 mm*

ДОСТАВНИ ТЕГЛА

Листове (пачки) *до 5 t*
Рулони *до 5 t*

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката.

According to the sides protected by final coating

OH 3373296-88
Single-sided (L,O,P and F)
Double-sided (L,O and P)

According to surface quality

OH 3373296-88
Group I - High quality (L,O,P and F)
Group II - Ordinary quality (L,O,P and F)

According to the surface

OH 3373296-88
Smooth (S)
Relief (R)

According to treatment

OH 3373296-88
For stamping - normal (N), deep (D)
For profiling
For cutting

According to colour - Catalogue RAL

OH 3373296-88

According to degree of adhesion

OH 3373296-88 i.4.10

SIZES

BDS 6903-83 *DIN 59232-78*
BDS 4626-87 *DIN 17162-77*

Sheets

Thickness *0.4 - 1.5 mm*
Width *750 - 1250 mm*
Length *up to 5000 mm*

Coils

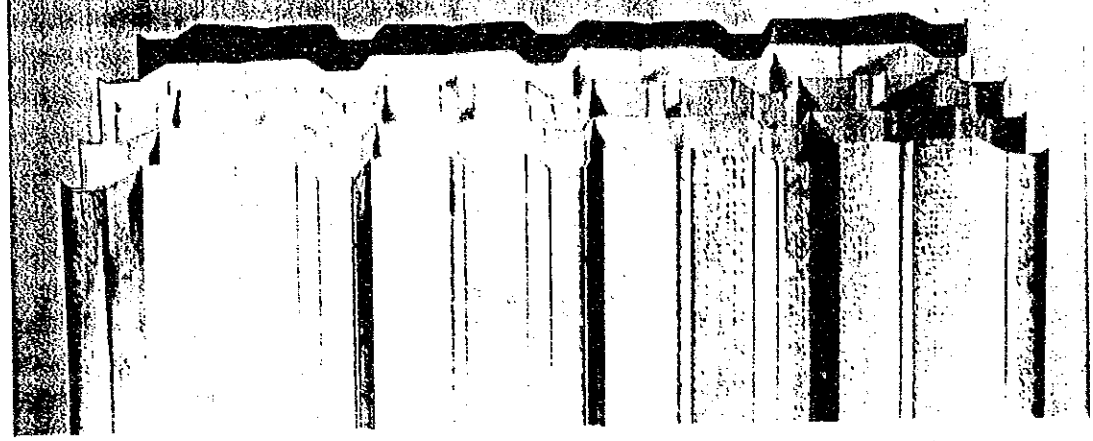
Thickness *0.4 -1.5 mm*
Width *750 - 1250 mm*
ID *600 mm*

DELIVERED WEIGHTS

In bundles up to *5 t* single weight
In coils up to *5 t* single weight

NOTE: Final delivery conditions as agreed upon order.

ШИРОКОЛЕНТОВИ ПОЦИНКОВАНИ ПРОФИЛИ С ОРГАНИЧНИ ПОКРИТИЯ
WIDE-STRIP GALVANIZED PROFILES WITH ORGANIC COATINGS



Това е студеновалцувана стоманена лента с двустранно защитно цинково покритие с или без органично покритие (металопласт).

This is a cold-rolled steel strip with a two-side protective zinc coating with or without organic coating (metal-base laminate). The profiling depends on the purpose of the profile.

МАТЕРИАЛ ЗА ОСНОВА

а) Студеновалцувана ламарина	*БДС 4558-86*	*DIN 1623-1*
б) Горещопоцинкована ламарина	*БДС 4626-87*	*DIN 17162-77*

MATERIAL USED AS BASIS

a) Cold-rolled steel sheet	*BDS 4558-86*	*DIN 1623-1*
b) Hot-rolled steel sheet	*BDS 4626-87*	*DIN 17162-77*

КЛАСИФИКАЦИЯ - *ОН 3365752-74*

а) По вида на покритието		
Гр.А - цинково	*БДС 4626-87*	*DIN 17162-77*
ГР.Б - органично	*ОН 3373296-88*	*EN 169-85*

CLASSIFICATION - *OH 3365752-74*

a) By the type of coating		
Gr.A - zinc	*BDS 4626-87*	*DIN 17162-77*
Gr.B - organic	*OH 3373296-88*	*EN 169-85*

ТИПОВЕ И РАЗМЕРИ

Тип профил	Дебелина	Ширина	Дължина
δ x 32 x 830	*0.55-1.5 mm*	*830-930 mm*	*500-2000 mm*
δ x 40 x 750	*0.6-1.5 mm*	*750 mm*	*1500-15000 mm*
δ x 55 x 750	*0.6-1.5 mm*	*750 mm*	*1500-15000 mm*
δ x 55 x 740	*0.6-1.5 mm*	*740 mm*	*1500-15000 mm*
δ x 55 x 562	*0.6-1.5 mm*	*562 mm*	*1500-15000 mm*

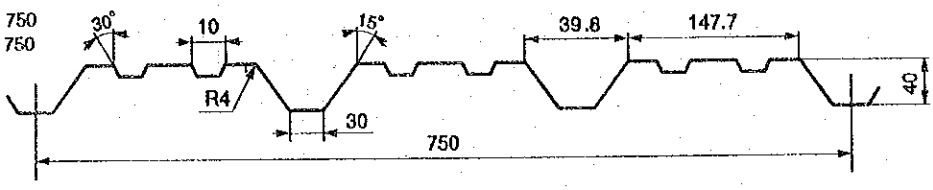
TYPES AND DIMENSIONS

Type of profile	Thickness	Width	Length
δ x 32 x 830	*0.55-1.5 mm*	*830-930 mm*	*500-2000 mm*
δ x 40 x 750	*0.6-1.5 mm*	*750 mm*	*1500-15000 mm*
δ x 55 x 750	*0.6-1.5 mm*	*750 mm*	*1500-15000 mm*
δ x 55 x 740	*0.6-1.5 mm*	*740 mm*	*1500-15000 mm*
δ x 55 x 562	*0.6-1.5 mm*	*562 mm*	*1500-15000 mm*

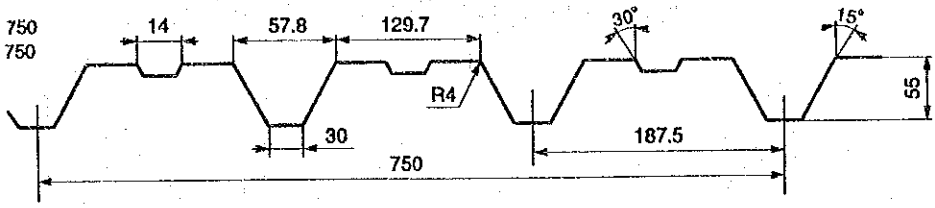
ВИД НА ПРОФИЛА - трапецовиден

TYPE OF PROFILE - trapezoidal

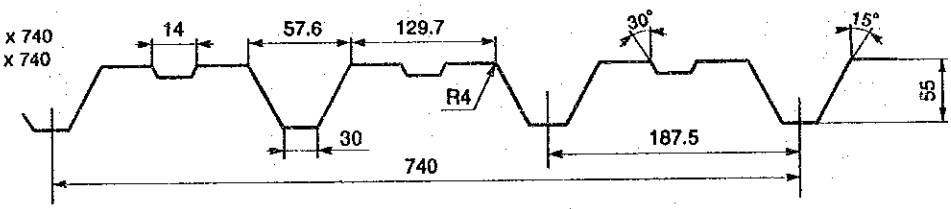
Тип δ x 40 x 750
Type δ x 40 x 750



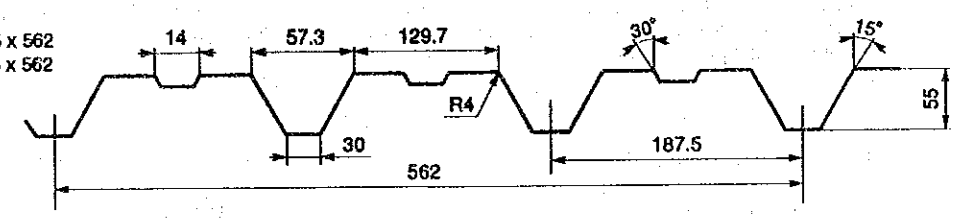
Тип δ x 55 x 750
Type δ x 55 x 750



Тип δ x 55 x 740
Type δ x 55 x 740



Тип δ x 55 x 562
Type δ x 55 x 562



Цветове на покритието

Каталог RAL *ОН 3373296-88*

Coating colours

RAL catalogue *ОН 3373296-88*

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката.

NOTE: The final terms of delivery as agreed upon order.

ТРЪБИ СТОМАНЕНИ БЕЗШЕВНИ ГОРЕЩОВАЛЦУВАНИ И СТУДЕНО ИЗТЕГЛЕНИ
SEAMLESS HOT-ROLLED AND COLD-DRAWN STEEL PIPES

Горещовалцувани безшевни стоманени тръби както и последствено изтеглени такива от въглеродни и легирани марки стомани намиращи приложение в тръбопроводни, газопроводни инсталации, метални конструкции и други.

The seamless hot-rolled steel pipes as well as such ones being subsequently cold-drawn from carbon and alloyed steel grades are used in piping, gas-piping installations, metal structures, etc.

ФОРМА НА ДОСТАВКА
Връзка (пакети)

DELIVERED IN
Bundles (packs)

МАРКИ СТОМАНА

а) Стомана качествена конструкционна
БДС 5785-83
(Безшевни горещо валцувани)

	Марка по DIN	
Ст.10	RSt37.0	*DIN1629-84*
Ст.20	RSt44.0	*DIN1629-84*
М35	C - 35	*DIN17200-87*

б) Стомана легирана конструкционна
БДС 6354-85
(Безшевни горещовалцувани)

STEEL GRADES

a) High-grade structural steel

BDS 5785-83
(seamless, hot-rolled)

	Grade as per DIN	
Ст.10	RSt37,0	*DIN1629-84*
Ст.20	RSt44.0	*DIN1629-84*
М35	C - 35	*DIN17200-87*

b) Alloyed structural steel

BDS 6354-85
(seamless, hot-rolled)

Марка по DIN		
20X		
40X	41Cr4	*DIN17200, DIN1654*
30XCA	-	

РАЗМЕРИ

БДС 6007-80 *DIN 2448-81*

Дължини: номинална

4.0 - 12.0 m *6.0 - 12.0 m*

а) Безшевни горещовалцувани тръби

БДС 6007-80 *DIN 2448-81*
БДС 6111-80 *DIN 1629-84*

Външен диаметър - *от 50 до 156 mm*
Дебелина на стената - *от 4 до 25 mm*
Допустими отклонения от диаметъра и дебелината на стената по *БДС 6007-80* *DIN 1629-84*
DIN 2448-81

б) Студено изтеглени тръби

БДС 6057-81 *DIN 2448-81*
БДС 6175-82

Външен диаметър - *от 38 до 76 mm*
Дебелина на стената - *от 2.0 до 6.0 mm*
Допустими отклонения от диаметъра и дебелината на стената *БДС 6057-81* *DIN 1629-84*
DIN 2448-81

ДОСТАВНИ ТЕГЛА

На връзки - *5 t*

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката.Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

Grade as per DIN		
20X	-	
40X	41Cr4	*DIN17200, DIN1654*
30XCA	-	

DIMENSIONS

BDS 6007-80 *DIN 2448-81*

Lengths: nominal

4.0 - 12.0 m *6.0 - 12.0 m*

a) Seamless hot-rolled pipes

BDS 6007-80 *DIN 2448-81*
BDS 6111-80 *DIN 1629-84*

Outer diameter - *from 50 up to 156 mm*
Wall thickness - *from 4 up to 25 mm*
Permissible deviations from diameter and wall thickness - as per *BDS 6007-80* *DIN 1629-84*
DIN 2448-81

b) Cold-drawn pipes

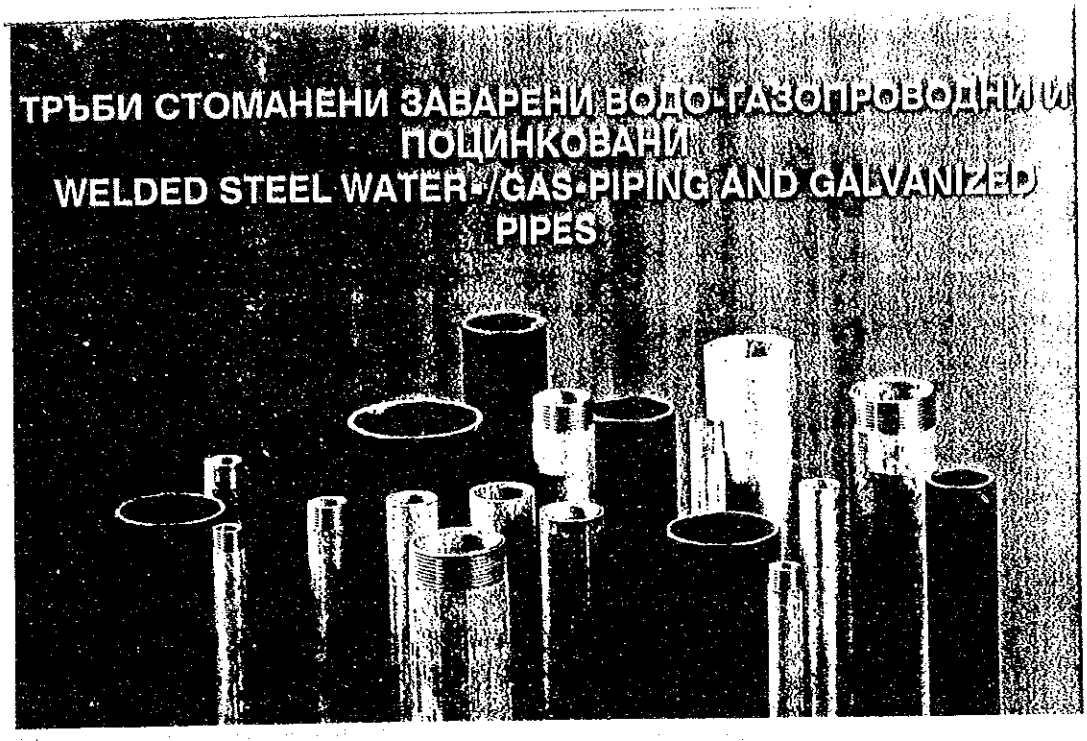
BDS 6057-81 *DIN 2448-81*
BDS 6175-82

Outer diameter - *from 38 up to 76 mm*
Wall thickness - *from 2.0 up to 6.0 mm*
Permissible deviations from diameter and wall thickness - as per *BDS 6057-81* *DIN 1629-84*
DIN 2448-81

DELIVERED IN

Bundles of *5 t*

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.



Стоманени електрозаварни тръби черни и поцинковани, обикновени и усилени са предназначени за водопроводни, газопроводни и отоплителни инсталации.

ФОРМА НА ДОСТАВКА
Връзки

МАТЕРИАЛ ЗА ОСНОВА
ГВ стоманена лента

а) Стомана конструкционна обикновено качество

БДС 2592-71	*DIN 17100-80*
АСт.1, БСт.1кп	USt37-0
АСт.3	
БСт.2кп*	
БСт.3кп*	
ВСт.2кп	USt.37-2
ВСт.3кп	

б) Стомана качествена конструкционна

БДС 5785-83	*DIN 1626-84*
10кп	-
15	RSt37-0
15кп	USt37-0
20*	RSt44-0
20кп, 20пс	-

* Най-използваната марка стомана за пр-во на тръби във фирмата.

The electrically welded steel pipes, black and galvanized, ordinary and stengthened, are designed for water-piping, gas-piping and heating installations.

DELIVERED IN
Bundles

MATERIAL USED AS BASIS
Hot-rolled steel strip

a) Structural, ordinary-quality steel

BDS 2592-71	*DIN 1626-84*
ACт.1, БСт.1кп	USt37-0
ACт.3	
БСт.2кп*	
БСт.3кп*	
ВСт.2кп*	USt 37-2
ВСт.3кп	

b) Structural, high-grade steel

BDS 5785-83	*DIN 1626-84*
10кп	-
15	RSt37-0
15кп	USt37-0
20*	RSt44-0
20кп, 20пс	-

* The most often used steel grade for production of pipes by the Company.

ТЕХНИЧЕСКИ ИЗИСКВАНИЯ ЗА ТРЪБИ

БДС 738-85 *DIN 2444*
БДС 6120-84 *DIN 2440*
DIN 1626

ЦИНКОВО ПОКРИТИЕ

Плътно по цялата вътрешна и външна повърхност с дебелина, не по-малка от *30 μm*.

РАЗМЕРИ

Дължина

- неопределена - *от 4.0 до 12.0 m*
(обикновено *7.8 m ±100 mm*)

Диаметри и дебелина на стената

а) За тръби стоманени правошевни с общо предназначение
- произвеждани профилоразмери:
ø57 x 3 mm, ø57 x 3.5 mm,
ø57 x 4 mm; ø63.5 x 2.5 mm;
ø85 x 3 mm; ø 89 x 3 mm
ø 89 x 3.5 mm, ø 89 x 4 mm
- допустими отклонения по *БДС 6360-80*

б) За тръби стоманени заварени за тръбно скеле
- произвеждани профилоразмери
Ø48 x 3.5 mm
- допустими отклонения по *БДС 8585-71*

в) За тръби електрозаварени водо-газопроводни
горещоредуцирани - *1/2" до 2 1/2" /15-70 mm/*
- условен отвор
нередуцирани - *3" и 4" /80 - 100 mm/*
- външен диаметър - от *21.3 mm до 114.3 mm*
- дебелина на стената
обикновени - *2.6 - 4.5 mm*
усилени - *3.2 - 5.4 mm*
леки - *2. 3 - 4 mm*

Допустими отклонения по *БДС738-85 DIN 1626-84*
Технически условия за доставка по
БДС 6120-84 *DIN 1626-84*
БДС 738-85 *DIN 2440-78*
БДС 8585-71

ДОСТАВНИ ТЕГЛА

Връзки с маса до *5 t*
Изисквания към цинковото покритие
БДС 738-85

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

TECHNICAL REQUIREMENTS TO PIPES

BDS 738-85 *DIN 2444*
BDS 6120-84 *DIN 2440*
DIN 1626

ZINC COATING

Dense, upon the entire inside and outside surface, with a thickness not less than 30 *μm*.

DIMENSIONS

Length:

- undetermined - from *4.0 up to 12.0 m*
(usually *7.8 m ± 100 mm*)

Diameters and wall thickness

a) for steel, straight-seam, general-purpose pipes
- profile dimensions produced:
ø57 x 3 mm; ø57 x 3.5 mm;
ø57 x 4 mm, ø63.5 x 2.5 mm,
ø85 x 3 mm, ø89 x 3 mm
ø89 x 3.5 mm, ø89 x 4 mm
- permissible deviations as per *BDS 6360-80*

b) for steel welded pipes for tubular scaffold
- profile dimensions produced
ø48 x 3.5 mm
- permissible deviations as per *BDS 8585-71*

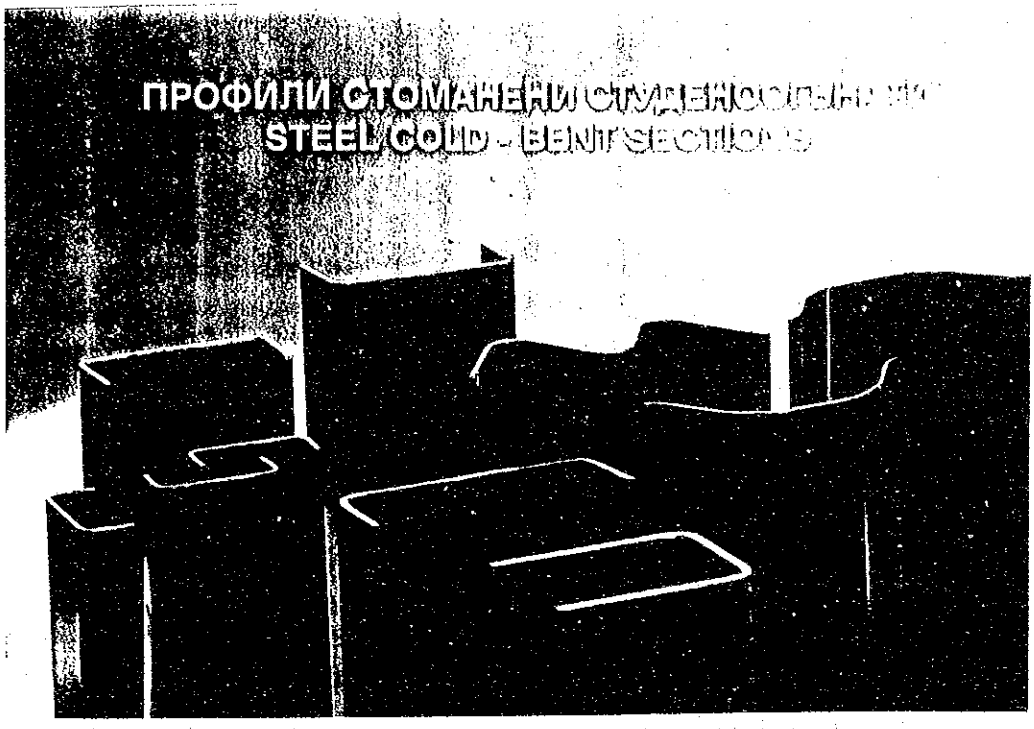
c) for electrically welded water-/gas-piping pipes:
hot-reduced - *1/2" to 2 1/2" (15 - 70 mm)*
- conditional opening
unreduced - *3" and 4" (80 - 100 mm)*
- outer diameter - *from 21.3 up to 114.3 mm*
- wall thickness
ordinary pipes - *2.6 - 4.5 mm*
strengthened pipes - *3.2 - 5.4 mm*
ligth - *2. 3 - 4 mm*

Permissible deviations as per *BDS738-85 DIN 1626-84*
Technical conditions for delivery as per:
BDS 6120-84 *DIN 1626-84*
BDS 738-85 *DIN 2440-78*
BDS 8585-71

DELIVERED IN WEIGHTS OF:

Bundles of up to *5 t* weight
Requirements to the zinc coating
BDS 738-85

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.



ПРОФИЛИ СТОМАНЕНИ СТУДЕНООГЪНАТИ ОТ
STEEL COLD - BENT SECTIONS

Това е студеноогъната стоманена лента (щрипс) на ролков стан. Точността на размерите и качеството на производство ги прави приложими в много промишлени отрасли главно, като метални конструкции.

1.МАРКИ СТОМАНА

а) Стомана конструкционна обикновено качество

БДС 2592-71	*DIN 17100-80*
Ст.1кп	St 33
Ст.2кп	St 37-2
Ст.3кп	USt 37-2
Ст.3сп	RSt 37-2

б) Стомана конструкционна качествена

БДС 5785-83	*DIN 17200, 17210-86*
Ст.08	-
Ст.10	C10
Ст.20	C22

This is a steel strip cold-bent on a roll mill. The precision of dimensions and the manufacturing quality make them applicable in many industries and mainly, as metal structures.

1.STEEL GRADES

a) Structural, ordinary-quality steel

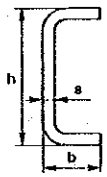
BDS 2592-71	*DIN 17100-80*
Ст.1кп	St 33
Ст.2кп	St 37-2
Ст.3кп	USt 37-2
Ст.3сп	RSt 37-2

b) Structural, high-grade steel

BDS 5785-83	*DIN 17200, 17210-86*
Ст.08	-
Ст.10	C10
Ст.20	C22

2.РАЗМЕРИ *БДС 8111-89 DIN 59413-76*

2.DIMENSIONS *BDS 8111-89 DIN 59413-76*



Размери, mm Dimensions, mm			Размери, mm Dimensions, mm			Забележка Remark
h	b	s	h	b	s	
100	40 50 60 80	3.0-5.0 3.0-5.0 3.0-4.0 3.0-5.0	180	80 100	4.0-6.0 5.0-6.0	Допуска се производство и с други размери, съгласувани между производителя и потребителя. It is allowed to output products with other dimensions agreed upon between the producer and the customer.
120	50 60 80	4.0-6.0 4.0-6.0 4.0-5.0	200	80 100	4.0-6.0	
140	60 80 60	4.0-5.0 4.0-5.0 4.0-5.0	250	60	4.0-6.0	
160	80	4.0-5.0				

3. КОРИТООБРАЗНИ ПРОФИЛИ - ОЛУЦИ ЗА ОРАНЖЕРИИ

БДС 10696-73

4. ПРОФИЛИ ЗА КРАЙПЪТНИ ОГРАДИ

ОН 3372746-81

5. ДОПУСТИМИ ОТКЛОНЕНИЯ ПО ШИРИНА И ВИСОЧИНА НА ПРОФИЛА (h и b)

до 50 mm - ± *1 mm*
50-100 mm - ± *1.5 mm*
над 100 mm - ± *2.5 mm*

6. ДОПУСТИМИ ОТКЛОНЕНИ ОТ ПРАВИЯ ЪГЪЛ ПРИ ШИРИНА (b)

b = 50 mm ± 2^0 за номинална точност
b = *50 - 100 mm* ± $1^0 30'$ за повишена точност
b > *100 mm* ± 1^0

7. ПРОФИЛИТЕ СЕ ПРОИЗВЕЖДАТ

- с неопределени дължини от *3 до 11 метра*, определени, кратни на определените и приблизителни дължини в границите на неопределените дължини.

8. ДОПУСТИМИ ОТКЛОНЕНИЯ ПО ДЪЛЖИНА НА ПРОФИЛИТЕ

а) за определени и кратни на определените дължини + *80 mm*
б) за приблизителните дължини ± *200 mm*

9. ТЕХНИЧЕСКИ УСЛОВИЯ

БДС 6438-76 DIN 59413-76

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката. Освен посочените марки стомана по БДС, могат да се изпълняват поръчки и за други марки по чуждестранни стандарти.

3. TROUGH-LIKE SECTIONS FOR HOT-HOUSE GUTTERS

- as per *BDS 10696-73*

4. ROADSIDE FENCE SECTIONS

- as per *OH 3372746-81*

5. PERMISSIBLE DEVIATIONS IN WIDTH AND HEIGHT OF THE SECTION (h AND b)

up to 50 mm - ±*1 mm*
50 -100 mm - ±*1.5 mm*
over 100 mm - ± *2.5 mm*

6. PERMISSIBLE DEVIATIONS AT THE RIGHT ANGLE AT WIDTH IN

b = *50 mm* ± 2^0 for nominal precision
b = *50 - 100 mm* ± $1^0 30'$ for high precision
b > *100 mm* ± 1^0

7. THE SECTIONS ARE PRODUCED IN

-undefined lengths from *3 up to 11 metres*, in defined lengths, in lengths multiple to the defined ones and in approximate lengths within the limits of the undefined lehgths.

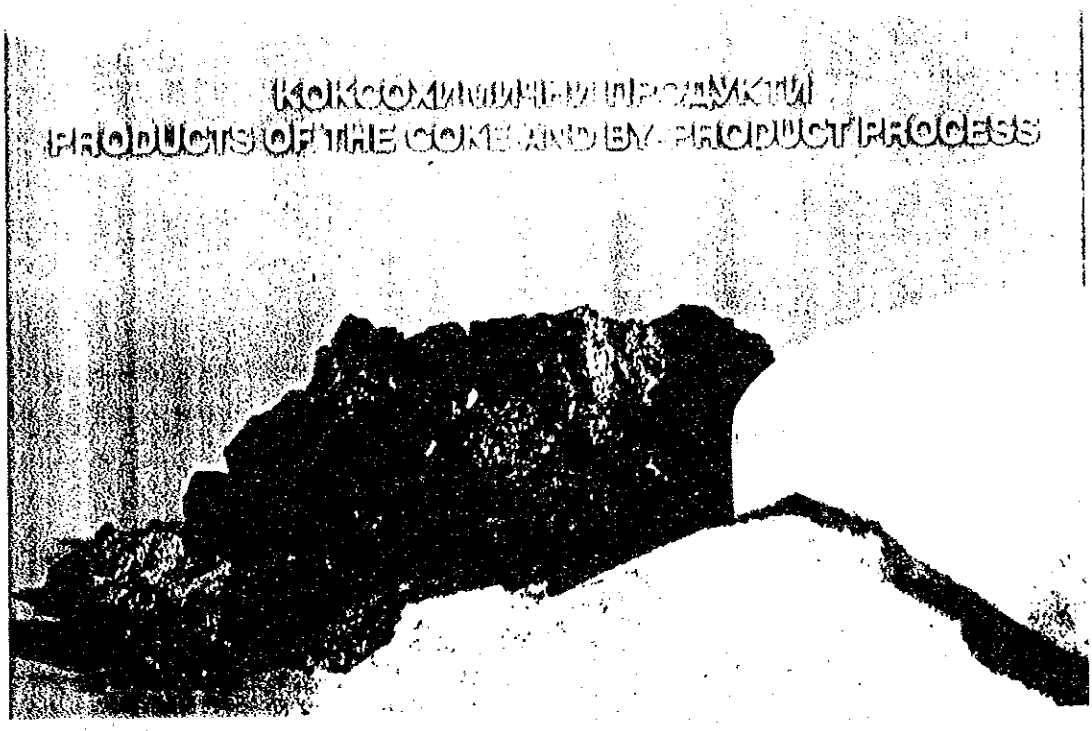
8. PERMISSIBLE DEVIATIONS IN THE SECTIONS LENGTH

a) for defined lengths and lengths multiple to the defined lengths + *80 mm*
b) for approximate lengths ± *200 mm*

9. TECHNICAL CONDITIONS

BDS 6438-76 DIN 59413-76

NOTE: The final terms of delivery will be agreed upon in the order. Besides the above mentioned steel grades according to BDS, other steel grades according to standards specified by the customer can be produced.



КОКС МЕТАЛУРГИЧЕН *БДС 422-83*
Технически показатели

	I качество	II качество
1. Съдържание на обща влага, % *max*	4.0	5.0
2. Съдържание на пепел, % *max*	13.0	14.0
3. Съдържание на обща сяра, % *max*	1.8	2.0
4. Съдържание на летливи вещества (V^{daf}), % *max*	1.1	1.6
5. Показател за якост М25, не по-малко от, %	82.0	79.5
6. Показател за якост М10, не повече от, %	9.5	11.5
7. Клас по едрина на късовете, не по-малко от, *mm*	25	25
8. Съдържание на класа по едрина на късове под 25 mm, не повече от, %	4.0	5.0

Форма на доставка - насипно тегло във вагони

КАТРАН КАМЕНОВЪГЛЕН *ОН 04 67148-76*

1. Относително тегло при 20°C *g/cm³*	-	1.18 - 1.25
2. Съдържание на вода, % *max*	-	5.0
3. Съдържание на пепел, % *max*	-	0.6
4. Съдържание на вещества неразтворими в толуол, % *max*	-	14.0
5. Количество на кокс, % *max*	-	29.0
6. Съдържание на сяра, % *max*	-	0.8
7. Вискозитет на Енглер при 80°C	-	2.5 - 6.5
8. Съдържание на нафталин, % *max*	-	14
9. Температура на запалване в открит съд, *°C*	-	над 90
10.Съдържание на феноли, % *max*	-	4

Форма на доставка - в цистерни

METALLURGICAL COKE *BDS 422-83*
Technical specifications

	1st quality	2nd quality
1. Contents if general humidity, % *max*	4.0	5.0
2. Ash contents, % *max*	13.0	14.0
3. Contents of general sulphur, % *max*	1.8	2.0
4. Contents of volatile substances /V^{daf}/, % *max*	1.1	1.6
5. Strength index M25, not less than, %	82.0	79.5
6. Strength index M10, not more than, %	9.5	11.5
7. Lump size class, not less than, *mm*	25	25
8. Contents of lump size class below 25 mm, not more than, %	4.0	5.0

Delivered in bulk in wagons.

COAL TAR *OH 04 67148-76*

1. Specific weigth at 20°C, *gr/cm³*	1.18 - 1.25
2. Water contents, % *max*	5.0
3. Ash contents, % *max*	0.6
4. Contents of substances insoluble in toluene, % *max*	14.0
5. Coke quantity, % *max*	29.0
6. Sulphur contents, % *max*	0.8
7. Engler viscosity at 80°C	2.5 - 6.5
8. Naphtalene contents, % *max*	14
9. Temperature of ignition in an open vessel, *°C*	above 90
10.Contents of phenols, % *max*	4

Delivered in cisterns.

НАФТАЛИН ТЕХНИЧЕСКИ *БДС 1521-76*

Технически показатели

	СОРТОВЕ А	Б	В
1. Външен вид	не се нормира		
2. Цвят	не се нормира		
3. Точка на кристализация, °C *min*	79.0	78.8	78.2
4. Съдържание на пепел, % *max*	0.02	0.02	0.02
5. Съдържание на влага, %	не се нормира		
6. Съдържание на сяра, % *max*	0.5	0.5	0.5
7. Съдържание на нелетлив остатък, не повече от, %	0.04	0.04	0.04

Форма на доставка - торби от натронова хартия с нетна маса *30 ±0.25 kg*

НАФТАЛИН СУБЛИМИРАН *БДС 1521-76*

Технически показатели

1. Цвят	не се нормира
2. Външен вид	не се нормира
3. Точка на кристализация, °C	79 ± 0.4
4. Съдържание на пепел, % max	0.01
5. Не летлив остатък, не повече, %	0.02
6. Съдържание на вода, не повече, %	0.2
7. Съдържание на сяра, не повече, %	0.4
8. Маслено петно	не се допуска

Форма на доставка торби от натронова хартия с нетна маса *30 ±0.25 kg*

АМОНИЕВ СУЛФАТ *БДС 1675-82*

Технически показатели

	I качество	II качество
1. Съдържание на азот, % *min*	21.0	20.5
2. Съдържание на влага, % *max*	0.5	1.0
3. Свободна сярна киселина, % *max*	0.05	0.15
4. Цвят	бял до слабо оцветен	не се нормира
5. Неразтворими във вода примеси, % *max*	0.1	не се нормира
6. Роданиди, %	не се допускат	не се допускат

Форма на доставка
Насипна

ЗАБЕЛЕЖКА: Окончателните условия на доставка се договарят в поръчката.

NAPHTALENE, TECHNICAL GRADE
BDS 1521-76

Technical specifications

	Grades A	B	C
1. Appearance	not specified by norm		
2. Colour	not specified by norm		
3. Crystallization point, °C *min*	79.0	78.8	78.2
4. Ash contents, % *max*	0.02	0.02	0.02
5. Humidity contents, % *max*	not specified by norm		
6. Sulphur contents, % *max*	0.5	0.5	0.5
7. Contents on non-voltatile residue, not more than, %	0.04	0.04	0.04

Delivered in - natron-paper bags of *30 ± 0.25 kg* net weight

NAPHTALENE, SUBLIMED *BDS 1521-75*

Technical specifications

1. Colour	not specified by norm
2. Appearance	not specified by norm
3. Crystallization point, °C	79.0 ± 0.4
4. Ash contents, % *max*	0.01
5. Non-voltatile residue, not more than, %	0.2
6. Water contents, not more than, %	0.2
7. Sulphur contents, not more than, %	0.4
8. Oil stain	not allowed

Delivered in natron-paper bags of *30 ± 0.25 kg* net weight.

AMMONIUM SULPHATE *BDS 1675-82*

Technical specifications

	1st quality	2nd quality
1. Nitrogen contents, % *min*	21.0	20.5
2. Humidity contents, % *max*	0.5	1.0
3. Free H_2SO_4, % *max*	0.05	0.15
4. Colour	white to weakly coloured	not specified by norm
5. Water-insoluble admixtures, % *max*	0.1	not specified by norm
6. Rhodanates, %	not allowed	not allowed

Delivered in
Bulk

NOTE: The final terms of delivery will be agreed upon in the order.

МЕТАЛУРГИЧНА ВАР
METALLURGICAL LIME

ВАР МЕТАЛУРГИЧНА *ОН 0466298-75*
ТЕХНИЧЕСКИ ИЗИСКВАНИЯ

Металургичната вар се получава при равномерно изпичане на варовик, креда и доломит във въртящи се пещи и е предназначена за флюсуваща добавка в стоманодобивното, феросплавното, агломерационното производства.
В зависимост от гранулометричния състав и предназначението металургичната вар се про-извежда в три марки:

А - фракция над *10 mm*, предназначена за стоманодобивното производство
Б - фракция до *10 mm*
В - валова вар-количество, което излиза от въртящите пещи без да се пресява

Техническа характеристика

Показатели	А		Б	В
	Iкач.	IIкач.		
1.Калциев и магнезиев окис, не по-малко от, %	75	67	75	75
2.Силициев двуокис не повече от, %	2	3	3	3
3.Двуалуминиев и двужелезен триокис, не повече от, %	несе нормира	несе нормира	3	3
4.Сяра, не повече от, %	0.5	несе норм.	несе норм.	несе норм.

Контролни анализи

Съдържанието на активен калциев окис, двуалуминиев и двужелезен триокис и на сяра се определя по *БДС 2858-74*.

Съхранение и експедиция

Съхранява се в сухи и закрити складови помещения и се транспортира в закрити превозни средства.

METALLURGICAL LIME *ОН 0466298-75*
TECHNICAL REQUIREMENTS

The metallurgical lime is produced by uniform firing of limestone, chalk and dolomite in rotating lime-kilns. It finds application as flux addition in steel making, ferro-alloy making and agglomeration.

According to the granular structure and application, metallurgical lime is delivered in three grades:

A - fraction above *10 mm*, for steel-making
Б - fraction up to *10 mm*
B - shaft lime, amount obtained from rotating lime-kilns without screening.

Technical specifications

Parameters	A		Б	B
	I quality	II quality		
1.Calcium and magnesium oxide, % not less than	75	67	75	75
2.Silicon dioxide, % not more than	2	3	3	3
3.Alumina and ferrous oxide, % not more than	not spec.	not spec.	3	3
4.Sulphur, % not more than	0.5	not spec.	not spec.	not spec.

Control analyses

Contents of active calcium oxide, alumina, ferrous oxide and sulphur specified by *BDS 2858-74*.

Storage and dispatching

It is kept in dry and covered stores and is transported in covered vehicle.

ФЕРОСИЛИЦИЙ , БАРИТ И ЖЕЛЕЗЕН СУЛФАТ
FERROSILICIUM , BARYTA AND FERROUS SULPHATE

ФЕРОСИЛИЦИЙ

Произвежда се в електропещи и се използува като разкислител и легираща добавка при производството на стомана и чугунени отливки.

Марки феросилиций

БДС 4147-80	FiSi75	FiSi75A	FiSi65	FiSi45
DIN 17560-65	-	FiSi75	-	FiSi45

Форма на доставка

- партидно от една марка
- съдържанието на силиций в отделните плавки на партидата е *±2.5 %*
- насипно в закрити транспортни средства
- опакован с двойнокаширани пластмасови чували или метални варели.

По договореност марките феросилиций могат да се доставят със съдържание на алуминий от *0.7 - 6.0%*.

Гранулометричен състав

Късове до *25 kg*.

Ситнеж под *20 mm* до *10 %* от масата на партидата

Марките FeSi75 и FeSi75A се доставят с едрина на късовете съответстваща на класовете - *2; 3; 4; 6; 7* по *БДС 4147-80*.

FERROSILICIUM

Manufactured in electric furnace and used as alloy addition in steelmaking and cast-iron making.

Grades

BDS 4147-80	FiSi75	FiSi75A	FiSi65	FiSi45
DIN 17560-65	-	FiSi75	-	FiSi45

Delivered in

-consignments from a grade

-contents of silicon in separate melts of the grade is *±2.5%*

-bulk in covered vehicle

-packed in double masked plastic sacks or metal barrels.

Grades ferrosilicium with contents of aluminium *0.7 - 6.0* % can be delivered upon agreement.

Granular structure

Pieces up to *25 kg*.

Fines under *20 mm* up to *10 %* of consignment mass

Grades FeSi 75 and FeSi 75A are delivered with massiveness of pieces in grades - *2, 3, 4, 6, 7* as per *BDS 4147-80*.

БАРИТ /БАРИТЕН КОНЦЕНТРАТ/
ОН 3375468-83

Баритният концентрат се получава при комплексното обработване на желязната руда от находище "Кремиковци" и е предназначен за цветната металургия и сондажните проучвания.

Технически показатели

	Качество			
	Екстра	I	II	III
1.Съдържание на $BaSO_4$ в %,не по-малко от	93.0	92.0	90.0	87.0
2.Съдържание на SiO_2 в % ,не повече от	2.0	2.0	3.0	4.0
3.Съдържание на CaO в %, не повече от	1.5	1.5	2.5	3.5
4.Съдържание на Fe_2O_3 в %, не повече от	1.0	1.5	2.0	3.0
5.Съдържание на влага в %, не повече от	10.0	10.0	10.0	10.0
6.Финност на смилане -остатък на сито No 0088 в %, не повече от	3.0	3.0	10.0	15.0
7.Плътност % не по-малко от	4.2	4.2	4.0	3.8
8.Съдържание на водоразтворими вещества в % , не повече от	0.9	0.9	0.9	0.9

Условия на доставка
Доставя се в насипно състояние с жп транспорт. Техническите изисквания са съгласно договора.

ЖЕЛЕЗЕН СУЛФАТ БДС 2026-55

Железният сулфат е извлечен от отработените разтвори при байцването на горещовалцувана стоманена ламарина със сярна киселина.

Техническа характеристика

На външен вид представлява зеленикаво-синкави кристали.

Анализ

1.Съдържание на железен сулфат	*над 97 %*
2.Съдържание на свободна сярна киселина	*до 1.54 %*
3.Неразтворим остатък	*до 0.70 %*

Приложение

Използва се за технически цели.

Експедиция

Доставя се в насипно състояние с авто и жп транспорт.

Технически изисквания

Техническите изисквания се определят чрез договор.

BARYTA (BARYTES CONCENTRATE)
ОН 3375468-83

Barytes concentrate is produced by complex treatment of iron-ore from "Kremikovtzi" ore deposit and finds application in non-ferrous metallurgy and land drilling.

Technical specifications

	Quality			
	Extra	I	II	III
1.$BaSO_4$ contents, % not less than	93.0	92.0	90.0	87.0
2.SiO_2 contents, % not more than	2.0	2.0	3.0	4.0
3.CaO contents, % not more than	1.5	1.5	2.5	3.5
4.Fe_2O_3 contents, % not more than	1.0	1.5	2.0	3.0
5.Humidity contents, % not more than	10.0	10.0	10.0	10.0
6.Fines-screen No 0088 remains, % not less than	3.0	3.0	10.0	15.0
7.Density, not less than	4.2	4.2	4.0	3.8
8.Contents of water-soluble substances, % not more than	0.9	0.9	0.9	0.9

Delivery conditions
Delivered in bulk with rail transport.
Technical requirements - as agreed upon in the order.

FERROUS SULPHATE BDS 2026-55

Ferrous sulphate is extracted from wasted solutions after stain of hot-rolled steel sheet with sulphuric acid.

Technical specifications

In appearance it is greenish-blue crystals.

Analyses

1.Contents of ferrous sulphate	*more than 97 %*
2.Contents of free sulphuric acid	*up to 1.54 %*
3.Insoluble remains	*up to 0.70 %*

Application

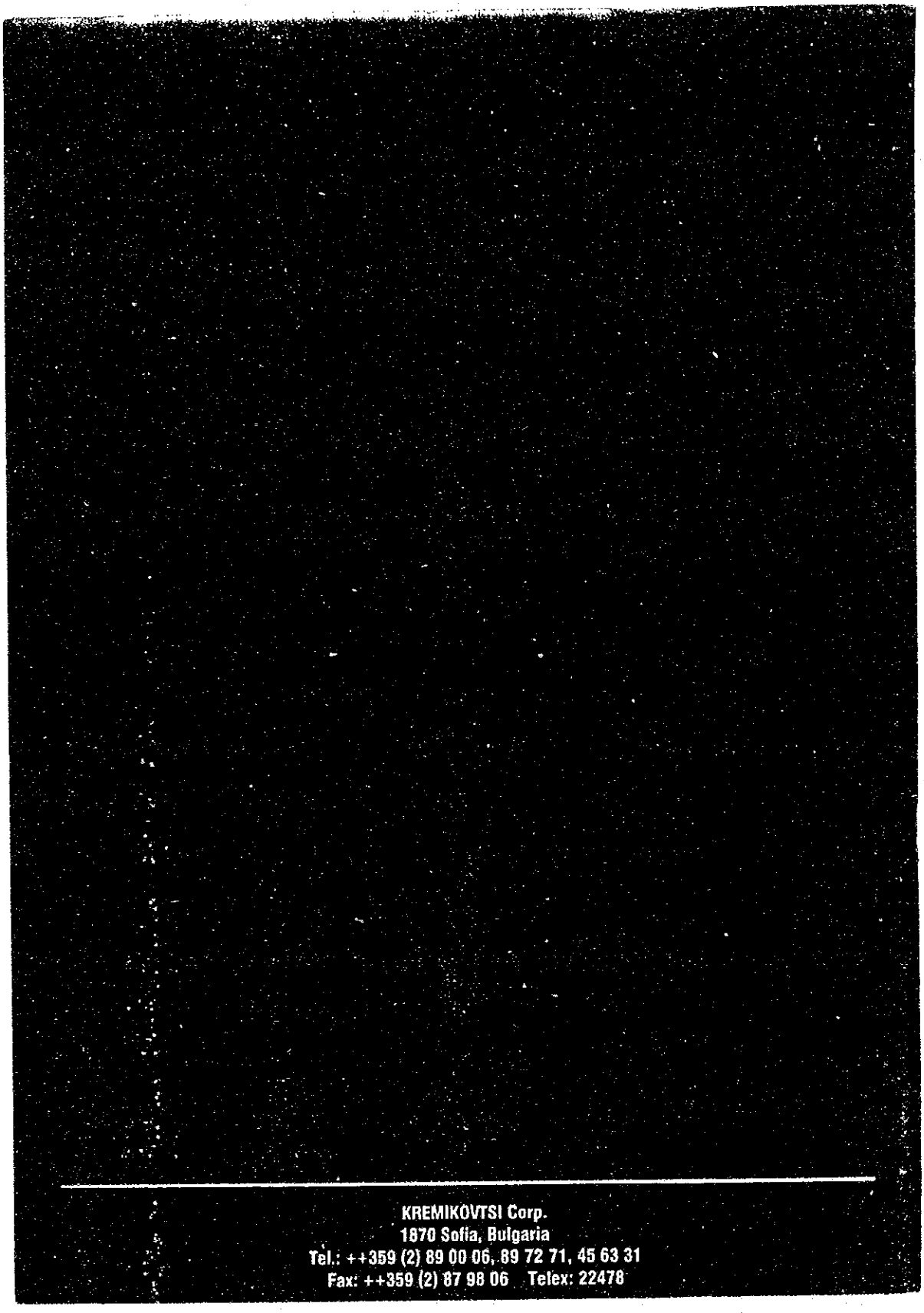
It is used for technical purposes.

Dispatching

Delivered in bulk with auto and rail transport.

Technical requirements

As agreed upon in the order.


KREMIKOVTSI Corp.
1870 Sofia, Bulgaria
Tel.: ++359 (2) 89 00 06, 89 72 71, 45 63 31
Fax: ++359 (2) 87 98 06 Telex: 22478

資料２－２）

ТЕХНОЛОГИЧНА СХЕМА НА АД «КРЕМИКОВЦИ»

(2) Works 工程図

数字は生産能力
×１０³トン／年

*Slab CCM
*Bloom CCM } は未設置

台数も天々２，１基　計３基に変更

КАРЬЕР ЗА ВАРОВИК

石灰、ドロマイト焼成キルン

ЗМО-ВАРОДОЛОМ ПЕЩ

ЧАЗ-ДОМЕНЕН ПЕЩ

КХЗ-КОКСОВ БАТЕРИЯ

コークス炉

ГАЗ Q_2プラント

合金鉄炉（Fe-Sz）

ФСЗ-ФЕРОСПЛ. ПЕЩ

САЗ-ЕЛЕКТРО ПЕЩ

電気炉

580

САЗ

2000

РУДНИК КРЕМИКОВЦИ

5000

РПП-ПЪРЕЖДАН ПЕЩ

АЗ-АГЛОМЕРАЦИЯ

2400

1840

選鉱

焼結機

高炉

上吹転炉

*ブルーム
連金付

*スラブ連鋳

2×400

①基

3×800

2基

СЪОРЪЖЕНИЕ ЗА НЕПРЕКЪСНАТО ЛЕЯНЕ НА

ПРЪТИ

СЛЯБИ

現在 分塊 3405 ×10³ tpa
(ブルーム スラブ)
(スラブ226万 t
ブルーム104万 t)

104－61＝43万 t ？

現在 Billit Mill 104万 t ？

線材ミル

ЗСВ-СТАН 250

500

ВЛАЧАРАТ

ТПЗ-СТАН 140

106

シームレスチューブミル

ТПЗ-СИТ

105

Cold drown pipe

СТОМАНА КВАДЕРНА ГОРЕЩОВАЛЦУВАНА ЗА ПРЕДЕЛКА

БДС 8251-75

ПРОКАТ СТОМАНЕН КРЪГЪЛ ГОРЕЩОВАЛЦУВАН

БДС 2536-75

ВЛАЧАРАТ

БДС 4630-82

ТРЪБИ СТОМАНЕНИ БЕЗШЕВНИ ГОРЕЩЕДЕФОРМИРАНИ

БДС 6057-80

ТРЪБИ СТОМАНЕНИ БЕЗШЕВНИ СТУДЕНОДЕФОРМИРАНИ И СТУДЕНОВАЛЦУВАНИ

БДС 6057-76

СТОМАНА ГОРЕЩЕВАЛЦУВАНА ЗАГОТОВКИ САЛКИ

БДС 7663-85

ЛЕГЕНДА：（工程別色別けした説明）

МАТЕРИАЛИ ЗА ПРОИЗВОДСТВО НА ЧУГУН

ЧУГУН, СТОМАНА

ГОРЕЩО ВАЛЦУВАНА ПРОДУКЦИЯ

СТУДЕНО ВАЛЦУВАНА ПРОДУКЦИЯ

ПОКАЛАЕНА ПРОДУКЦИЯ

ПОЦИНКОВАНА ПРОДУКЦИЯ

ПРОДУКЦИЯ С ОРГАНИЧНО ПОКРИТИЕ

ЗГВ-СТАН 1700

2150

半連続圧延

ЗСВ-1-НТА-1

ЗСВ-2-СТАН 1700

784

塩酸酸洗ライン

840

4 スタンドミル

ЗСВ-2-БЛ

ЗСВ-3-АНО

ЗСВ-3-БЛ 12

バッチ

亜鉛メ

硫酸酸洗ライン

ЗСВ-1-НТА-2

1000

ЗСВ-3-СТАН 1200

480

5 スタンドミル

ЗГВ-СТАН 1700

シャー

スリッター　溶接パイプ

ТПЗ-АРШ

200

ТПЗ-СТАН 25/114

94,8

-II-IA СХЕМА

ЕМИКОЦИИ»

数字は生産能力
×１０³トン／年

*Slab CCM
*Bloom CCM
は未設置

台数も天々２，１基　計３基に変更

金鉄炉（Fe-Sz）

電気炉

580

2000

上吹転炉

*ブルーム
連金付

*スラブ連鋳

3×800

2基

2×400

①基

СЪОРЪЖЕНИЕ ЗА
НЕПРЕКЪСНАТО
ЛЕЕНЕ НА

ПРЪТ%		СЛЯБ%
現在 分塊	3405	
(ブルーム / スラブ)		×10³ tpa

(スラブ226万 t
ブルーム104万 t)

ТЕНДА: （工程別色別けした説明）

ЛАЖ.ЗА ПРОИЗВОДСТВО НА ЧУГУН
СТОМАНА
ВАЛЦУВАНА ПРОДУКЦИЯ
ВАЛЦУВАНА ПРОДУКЦИЯ
ЛЕНА ПРОДУКЦИЯ
КОВАНА ПРОДУКЦИЯ
ЦИЯ С ОРГАНИЧНО ПОКРИТИЕ

ПГВ-СТАН 1700-АНР
360

シャー　スリッター
ЗГВ-СТАН 1700-КАР
400

3СВ-3-АНО
140

硫酸酸洗ライン
3СВ-1-НТА-2
1000

3СВ-3-СТАН 1200
480
5 スタンドミル

3СВ-3-ІЗП 1200
180
バッチ焼鈍

3СВ-3-АС 1200
400
テンパーミル

サイドトリマー
3СВ-3-АНР
120

3СВ-3-АНР-3 シャー
110

3СВ-2-АНР-5 スリッター
105

3СВ-2-АНР-4 スリッター
250

3СВ-2-АНР-2 シャー
150

3СВ-2-АНР-1 シャー
380

Cold Dent Section
ТПЗ-ПРОФИЛООГЪВАЩ СТАН
74,5

3СВ-3-АЕП
120
錫メッキ
（ブリキ）

3СВ-3-СТАН ЗА ПРОФИЛИ
45

3СВ-3-ЛИНИЯ ЗА РУС
30
カラー
樹脂
被覆処理

3СВ-1-НТА-1

3СВ-2-СТАН 1700
784
塩酸酸洗ライン
840
4 スタンドミル

3СВ-2-ІЗП 1700
640

3СВ-2-ЛИНИЯ 11В
30

3СВ-3-АНГП
170
亜鉛メッキ

3СВ-2-АС 1700
840
テンパーミル

ЗГВ-СТАН 1700
2150
半連続圧延

Znメッキタンク

ТПЗ-ПОЦИНКОВАНЕ
88,2

スリッター　溶接パイプ
ТПЗ-АРШ
200

ТПЗ-СТАН 25/114
94,8

資料２－３）

COMPLETE METALLURGICAL CYCLE FROM ORE OUTPUT TO ROLLED STEELS AND ARTICLES MADE OF THEM !

KREMIKOVTZI

KREMIKOVTZI CORPORATION

BULGARIA, SOFIA 1870, FAX 87-98-06

IRON AND STEEL PRODUCTION. Kremikovtzi Korp. operates three blast furnaces of useful vvolume 1033 m3 each; three 130 t oxygen converters and three 100 t EAFs. Kremicovtzi Corp. produces general purpose carbon steels (DIN 17100), sheet steel for hot and cold rolling (DIN 1614, DIN 1623), weldable fine-grain steel grades (DIN 17102), pipe steels (DIN 17140), spring steels (DIN 17221).

BLOOMING-SLABBING 1250
Single stand, reversible with a hot scarfing machine
BLOOMS: 170x170 - 370x370 mm
SLABS: H=120- 250 mm
W=600-1550 mm L<8 m

BILLET MILL 950/700/500
Continuous 3- and 7-stand trains, coolers, ect., no heat treatment
ROUNDS DIN 1013: D=100-150 mm L= 2-12 m
SQUARES DIN 1014: 80x80 - 120x120 mm L= 2-12 m

WIRE ROD MILL 250
Continuous, 21-stand mill and a cold strengthening machine.
WIRE ROD IN COILS DIN 1013:
Diameters: ϕ 6.5, 8, 10 и 12 mm.
Single coil weight 500 kg.

WIDE STRIP MILL 1700
Semi-continuous mill for hot rolling of sheet. Heat-treatment section with batch box furnaces and conveyer roller-hearth furnace. Pickling lines on hidrochloric and sulphuric acid.
HOT ROLLED SHEETS, COILS AND STRIP:
Thin sheets: 2,0 - 2,8 mm DIN 1016
Thick sheets: 3,0 -12,0 mm DIN 1543
Corrugated: 3,0 - 8,0 mm DIN 59220
Width : 600 - 1500 mm
SHEETS - length 2 - 6 m
COILS - I.D. 850 mm
- O.D. 1100-1900 mm
STRIP - Thickness 3,0 - 6,0 mm
- Width 200 - 600 mm
- I.D. 740 mm
WEIGHT - Bundles of 5 - 15 t
- Coils of up to 15,0 t

PIPE MILLS 140 AND 25/114, COLD-BENT SECTION MILL
140 Mill for seamless pipe production. A facility for cold-drown pipes. A drilling pipe unit.
25/114 Mill for electrically welded pipe production and a pipe galvanizing facility. No thermal treatment units.
A cold-bent section mill.
HOT ROLLED SEAMLESS AND COLD-DROWNN PIPES
DIN 2448 ; DIN 1629
LENGTH : 4 - 12 m WEIGHT: - bundles of up to 5,0 t
DIAMETERS AND WALL THICKNESS:
Seamless hot rolled pipes:
O.D. 50-159 mm; Wall thickness 4 - 18 mm
Cold-drawn pipes:
O.D. 38-76 mm; Wall thickness 3 - 6 mm
WELDED WATER AND GAS PIPES AND GALVANIZED PIPES
DIN 1626 DIN 2440 DIN 2444
LENGHTA 4 - 12 m EIGHT - bundels of up to 5 t
DIAMETERS AND WALL THICKNESS:
General purpose pipes: ø 57x4, ø 63.5x2.5, ø 85x3, ø 89x3 mm
Welded pipes for tubular scaffolding: ø 48 x 2,5-4,0 mm
El.welded water and gas pipes, average diameter:
hot reduced 1/2" до 2 1/2" (15,0-70,0 mm).
not reducedи 3" и 4" (80-100 mm)
- O.D. 21,3-114,0 mm
- Wall thickness: обикновени 2,0-4,5 mm
strengthened 3,2-5,0 mm
ZINC COATING - on the inside and outside, coating thickness not less than 30 /m.
COLD-BENT SECTIONS DIN 59413
- Height of the C-section 100-250 mm
- Wall thickness 3 - 6 mm; lenght 3 - 11 m

COLD STRIP MILLS 1700 и 1200
Continuous 4-stand mill 1700 and 5-stand mill 1200 for cold rolling. Termal treatment section with muffle box furnaces and a continuous annealing line. Temper mills and cutting and sliting lines.
COLD ROLLED SHEETS, COILS AND STRIP:

DIN 1623 DIN 1541	DIN 1616
SHEETS:	
- Thickness 0,50-2,5 mm	0,22-0,50 mm
- Width 720-1250 mm	512/712 mm and
- Length 2, 2.5, 3 m	other formats
STRIP: ширина 10 - 500 mm	
COILS:	
- I.D. 600 mm	300 mm
WEIGHT:-bundles up to 5 t	up to 1,5 t
-coils up to 10 t	

HOT-DIP SHEET GALVANIZIG LINE
A continuous anealing line for cold rolled coils, pickling, hot-dip galvanizing, coating cut off by air, etc.
THICKNESS: 0,5-1,5 mm WIDTH: 700-1250 mm
SHEET: length 2 m, BUNDLES of up to 2t weight
COILS: I.D. 600 mm, up to 10 t
COATING CLASS: DIN 17162: 100 - 600 g/m)

WIDE STRIP SECTION
A line for shaping cold rolled sheet, galvanized sheet and plastic coated sheet.
THICKNESS 0,6--1,5 mm
WIDTH: 562--930 mm
LENGTH: 1,5--15 m
Depth of shaping 32 - 55 mm

ELECTROLYTIC TINNING LINE
A contnuous annealing line, temper mill and preparation facility.
Continuous electrolytic tinning line: electrolytic pickling and application of coating, fusion, cutting, etc.
THICKNESS: 0,22-0,36 mm
SHEETS format 512 x 712 мм, etc in bundles of 800-1150 kg
COILS of up to 10 t weight
COATING CLASS I - XIII to DIN 1616 and EN 145 of coating mass 5,6-16,8 g/m)

LACQUERING AND PLASTIC COATING LINE
A continuous line for polimerization and baking of lacquer and plastic coatings upon cold rolled and galvanized sheet.
THICKNESS: 0,5-1,5 mm WIDTH: 700-1250 mm
SHEETS: length up to 5м, BUNDLES of up to 5t
COILS: I.D. 600 мм, up to 5 t
COATING EN 169/85: lacquer, organozols, plactizols, folio. Colour - RAL catalogue.

Other products by KREMIKOVTZI CORP.: FERRO-SILICON, BARRYTE, IRON SULPHATE, COKE, NAPTHALENE, AMMONIUN SULPHATE, COMMODITIES, incl. ENAMELLED ONES, etc.

資料2－4)〈SLAB－CCM〉

KREMIKOVTZI - AD

DEPARTMENT OF DEVELOPMENT AND INVESTMENT

INFORMATION

about the condition of the "Slab Continuous Caster - Kremikovtzi" by November 30th, 1992

The construction of the "Slab Continuous Caster" was prepared and brought to a contract under the conditions of a state-controlled economy. The delivery of the equipment was agreed in the terms of an international contract with the Austrian company "Föst-Alpine"; the contract was signed in December 1988 and ratified in March 1989. The ground-breaking was declared on August 7th 1990. Till the end of 1991 the realization of the construction and installation plan was comparatively regular. Due to funding difficulties, the rate of construction work has sharply decreased since the beginning of 1992. Up to now "Kremikovski Stroitel" - the major constructing company working on the project, has been utilizing about 10% of its working capacity.

The following information refers to the investment activities in planning, delivery of equipment, construction of facilities and installment of equipment:

I. Planning

The basic planning work has been fully completed.

II. Delivery of equipment

1. The obligations assumed by "Föst-Alpine"

The terms of Contract No.19/11/04269 oblige the Austrian company "Föst-Alpine" to deliver 5609 ton of equipment, including 442 ton of spare parts to be used during the first 2 years of work following the warranty period.

"Föst-Alpine" has been keeping to the terms and the schedule, stated in the contract.

2. The obligations, assumed by "Kremikovtzi-AD"

361 positions have been ordered so far but only 8 of them, equalling 13.2 million leva, have been bought. The manufacturers of the rest of the items have been chosen, the purchase of some of the items has been agreed, but due to funding difficulties, however, no purchase contracts have been signed for the time being.

III. Construction work

By November 30th 1992 only 35% of the planned construction work has been realized. The work done equals 88 million leva, including 20 million leva that have not been paid yet.

IV. Installment of equipment

Up to now only 0.4% of the installment work has been done, which is worth 1 million leva.

At present, the construction work and the installment of equipment are almost at a standstill. The terms stated in the contracts have been broken and the state of the project can be defined as critical.

The following investment plans have been developed, each of them regarding to a different way to proceed with the project:

1. Utilizing minimum funding and the organization, already created by the construction companies that work on the project, the construction work must be completed by March 31st 1993 (Appendix 1)
2. Providing the needed funding, the construction work must continue at a maximum rate (App.2)
3. In order to ease the funding difficulties, the terms of the construction work are to be delayed, while the rate of installment of equipment must keep to the schedule, defined in the contracts (App.3).
4. Standstill program (App.4)
5. Liquidation program (App5)

NOTE: The plans described in App.1,2&3 assume a starting date of April 1st 1993. By this date, the further funding of the project will be confirmed or declined.

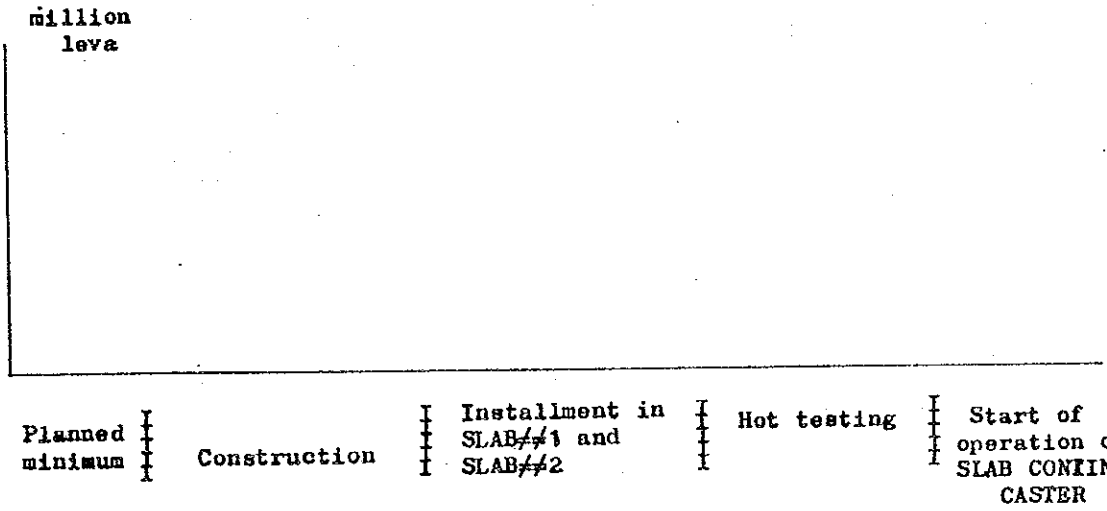
Nov. 30th 1992 Head of project:

APPENDIX 1 :

BREAKDOWN OF THE INVESTMENTS IN "SLAB CONTINUOUS CASTER"
FOR THE PERIOD 01/01/93 - 30/09/95

Total for the project: 1066 million leva, including :

To be paid	20 million leva
Miscellaneous	216 million leva
Equipment	435 million leva
Construction of facilities	160 million leva
Installment	235 million leva



APPENDIX 1:

PROGRAM OF MINIMA

for the period 01/11/92 - 31/03/93,

utilizing the organization already created in "Slab Continuous Caster"

(x1000 leva) 30/11/92

No.	Site	12.92	01.93	02.93	03.93	Total	Note
1	Water block	200	200	200	217	817	Concrete work, removing water, removing ∅420
2	Main stepdown station - 6 110 kV	-	395	260	260	915	Mounting panels, one layer of hydroinsulation
3	Main stepdown station - 6 ZRU 35/6/0.4kV	400	400	400	500	1700	Mounting elements, brickwork, leveling concrete
4.	Cable trestle	250	740	740	740	2470	Mounting panels and metal elements
5	Water and electric tunnel	600	600	600	600	2400	Concrete work, mounting panels for hydroinsulation
6	Base for the crystallizer workshop	100	100	100	100	400	Concrete work
7	Base for the facade masonry west-south bl.1	50	50	100	100	300	Concrete casting
8	Base of the out-of-furnace processing facilities	100	100	150	200	550	Concrete work, hydroinsulation
Total		1700	2585	2550	2717	9552	

APPENDIX 5:

LIQUIDATION PROGRAM

Anticipated costs in case of complete liquidation of "Slab Continuous Caster" (x1000 leva)

30/11/1992

Investments in:	Expenses	Refundable	Losts
Total : including	3 105 131	1 174 000	1 931 191
1. Equipment which has been bought + storage expenses	1 950 000	1 170 000	780 000
2. Forfeits, interests, and other financial losses due to breaking the terms of the contracts	886 191	-	886 191
3. Completed construction work and installment of equipment	89000	-	89 000
4. Liquidation of the construction and restoring the landscape	180 000	4 000	176 000

NOTE: The column "Refundable expenses" refers to the funds that will be gained by liquidation sale of "Slab Continuous Caster". The refundable total is 60%.

APPENDIX 4:

STANDSTILL PROGRAM

Anticipated expenses in case of a forced cessation of the construction activities and freezing of the project

30/11/92

Type of expenses	x1000 leva	Type of work
1. One-time expenses	93032	
1.1 Forfeits and other fees due to breaking the terms of the contracts	2000	
1.2 Delivered materials, construction elements, vibroelements, steel rods, etc.	43532	Metal constructions
1.3 Conservation of the constructed facilities and installed equipment	47 5000	Reverse embarkments. Concrete bases for stores. Anti-corrosion finish
2. Yearly miscellaneous expenses for the freezed facilities, including:	1 7000	
2.1 Protection	300	Fence, unarmed guards
2.2 Maintainance of the temporarily installed equipment, storage areas, preconservation work	700	
2.3 Storage and preconservation of the delivered equipment in the base stores	700	

Total: 94 732

NOTE: The above does not include the service charge and the payment of the credit, also the forfeits defined in the international contract.

APPENDIX 2:

INFORMATION ABOUT THE PAYMENTS AND

FOR THE CREDIT GRANTED TO "STOPANSKA

CONTRACT 58 WITH

	YEARLY PAYMENTS		
	1992	1993	1994
Payments according to Chapter 9.1	46.000	92.000	92.000
Payments according to Ch.9.1	26.300	52.600	52.600
x1000 Austrian Shillings	72.300	144.600	144.600
x1000 Leva	158.561	317.122	317.122
Yearly interest			
x1000 Austr. Shillings	68.092	57.967	47.845
x 1000 Leva	149.332	127.127	104.929
TOTAL:			
x1000 Austr. Shillings	140.389	202.567	192.323
TOTAL:			
x1000 Leva	307.893	444.249	422.051

NOTE: The rate of the Austrian Shilling - Bulgarian Lev exchange corresponds to the BNB rate on 03/08/92.

INTERESTS

BANK"

"SLAB CONTINUOUS CASTER"

1995	1996	1997	1998	1999	12000	Total till 31/08/2000
92.000	92.000	92.000	92.000	92.000	792.000	782,000
52.600	52.600	26.300				
144.600	144.600	118.300	92.000	92.000	92.000	1045.000
317.122	317.122	259.444	201.765	201.765	201.765	2241.789
37.723	27.601	19.320	12.920	6.520	0.120	331.197
82.730	60.532	42.371	28.335	14.299	2.632	612.287
182.323	172.201	137.620	104.920	98.520	92.120	1480.647
399.852	377.654	301.815	230.100	216.064	204.397	2904.075

資料 2 －5) (BLOOM－CCM)

К Р Е М И К О В Ц И – А Д

УТВЪРЖДАВАМ:
Гл.инженер .....
/Петър Иванов/

ТЕХНИКО – ИКОНОМИЧЕСКО ЗАДАНИЕ

Обект: "Кремиковци" – АД
Подобект: "Стоманодобивен завод"– Варианти за "Машина за непрекъснато разливане на заготовка".
Фаза: Предпроектни проучвания.

1.Обосновка и цел на разработката.

1.1.Кратък преглед на съществуващото положение

През периода 1987 – 1989г. от фирмите "Фьост-Алпине" – Австрия и "Металургпроект" бяха разработени проучвателни проектни разработки за изграждане на Цеха за непрекъснато разливане на стомана.В тези разработки се предвиждаше изграждане на цех с годишна производителност 3,2млн.тона стомана в състав:три едноручейни машини за разливане на сляби и две шестручейни машини за разливане на заготовки

В процес на изграждане е първият етап, с годишна производителност 1,6 млн.тона сляби с две машини за разливане.

При създалата се икономическа обстановка е очевидно, че в "Кремиковци"–ЕАД няма да има възможност да се произведат 3.2 млн тона стомана годишно и строителството на цеха, както е предвидено в проектните разработки е нецелесъобразно.

1.2.Цел на разработката

Целта на разработката е да се разработят варианти за задоволяване потребностите в "Кремиковци"–ЕАД от сортова заготовка в размер на около 400 хил.тона, със съответната технико-икономическа обосновка.

В проучването да се разгледат следните варианти:

1.Запазване съществуващото положение на ЗГВ – 1 за производство на 400 ÷ 600 млн.тона заготовки, с оптимизиране броя на нагревателните кладенци и режима на работа.

2.Ликвидиране на становете 1.350 и 900/700/500 и осигуряване заготовка от вън за стан 250 и ТПЗ.

3.Монтаж на една сортова машина в новоизграждащия се цех за непрекъснато разливане на стомана.

4.Монтаж на една сортова машина в ЗСДЦ на СДЗ.

При разработване на Варианти 3 и 4 да включи реконструкция на стан 250 на следните етапи:

– Първи етап – Създаване възможност за приемане заготовки с размери 130 и 115 мм.

– Втори етап – Реконструкция на останалата част на стан 250.

2.Производствена програма

Течна стомана

	Групи марки стомана	Количество/хил.т./
1.	Обикновени въглеродни стомани	35
2.	Качествени въглеродни стомани	290
3.	Нисколегирани стомани	20
4.	Неръждаеми стомани	5
5.	Инструментални стомани	20
6.	Легирани стомани	20
7.	Сварочни стомани	60
		450

Профилни размери

№	Размер /мм/	Количество /хил.т./
1.	Квадрат 130 x 130	217
2.	Квадрат 115 x 115	41
3.	Кръг 140	30
4.	Кръг 120	108
5.	Кръг 150	12
		408

3.Обхват на проучването

В проучването да се разработят следните части:

- технологични решения с използуване компютъризация и автоматизация.
- изисквания към производствените сгради
- екологични решения
- спесификация на машините и съоръженията
- потребности от суровини,материали, горива, енергия и източници за тяхното осигуряване
- осигуреност с трудови ресурси и изисквания към работната сила
- строително-конструктивни и инсталационни решения
- безопасност и хигиена на труда и пожарна безопасност
- технико-икономическа обосновка на актуалните варианти и др. спецефични изисквания.

Да се разработи директивен график за изграждане по варианта за разположение на сортовата машина в ЕСДЦ.

4.Срок за изработване - три месеца след представяне на технико-икономическото задание.

юли 1993год.

資料 2 －6)

Производство на електро стомана и конвертор стомана, отковори

	Мер ка.	Проектна мощност	1988	1989	1990	1991	1992	I полуг 1993г.	Остава но 1993г.
1 Ел. стомана	х.т		568,481	575,619	416,169	274,728	268,424	186,737	
в.т. вакуумирана	Х.Т.		53,153	44,182	32,697	11,009	8,854	3,200	
2 Конверторна St	Х.Т		1425,955	1454,632	1093,946	876,529	921,693	565,557	
ЗМО									
1 Металург Вар	Х.Т	80х.т.	143,4	138,0	99,6	87,0	74,816	44,6	
2. Металург доломит	Х.Т	45х.т	17,9	19,3	14,9	16,5	19,0	8,1	
3. Мекотечни доп.	Х.Т.		6,5	5,9	8,86	9,0	10,0	3,9	
4 Смолодол. Тухли.	Х.Т.		1.038	10,9	10,0	9,9	9,1	5,2	

資料 2 －7)　　ПРИЛОЖЕНИЕ № 1

Атмосферно замърсяване на пункт РПЗ -1992г. → Рудодобивен завод

Номер по ред	Месец	Прах мг/м^3	NO_2 мг/м^3	Фенол мг/м^3
ПДК		0.50	0.085	0.010
1	Януари	0.91	0.048	0.000
2	Февруари	1.43	0.067	0.000
3	Март	1.40	0.021	0.000
4	Април	1.64	0.046	0.000
5	Май	1.42	0.030	0.000
6	Юни	2.63	0.026	0.000
7	Юли	1.07	0.027	0.080
8	Август	1.23	0.030	0.028
9	Септември	1.81	0.020	0.010
10	Октомври	1.66	0.027	0.001
11	Ноември	1.27	0.099	0.073
12	Декември	2.30	0.095	0.016

Атмосферно замърсяване на пункт ЧДЗ - 1992г. Чугунолеярски завод

Номер по ред	Месец	Прах мг/м^3	NO_2 мг/м^3	Фенол мг/м^3
ПДК		0.50	0.085	0.010
1	Януари	0,53	0.076	0.000
2	Февруари	1.32	0.082	0.000
3	Март	2.24	0.014	0.000
4	Април	1.35	0.027	0.000
5	Май	1.97	0.019	0.000
6	Юни	2.47	0.023	0.000
7	Юли	1.91	0.028	0.048
8	Август	1.60	0.031	0.010
9	Септември	1.78	0.013	0.000
10	Октомври	1.76	0.037	0.000
11	Ноември	1.72	0.042	0.084
12	Декември	2.16	0.045	0.017

Атмосферно замърсяване на пункт КХЗ – 1992г. Коксохимически завод

Номер по ред	Месец	Прах мг/м^3	NO_2 мг/м^3	Фенол мг/м^3
ПДК		0.50	0.085	0.010
1	Януари	0.40	0.099	0.000
2	Февруари	0.92	0.027	0.000
3	Март	1.44	0.032	0.000
4	Април	0.00	0.000	0.000
5	Май	1.39	0.017	0.000
6	Юни	2.35	0.022	0.000
7	Юли	1.34	0.027	0.037
8	Август	2.42	0.039	0.010
9	Септември	2.18	0.023	0.010
10	Октомври	2,05	0.030	0.010
11	Ноември	2.17	0.011	0.073
12	Декември	1.82	0.034	0.022

Атмосферно замърсяване на пункт РМЗ – 1992г. Ремонтно-механичен завод

Номер по ред	Месец	Прах мг/м^3	NO_2 мг/м^3	Фенол мг/м^3
ПДК		0.50	0.085	0.010
1	Януари	1.24	0.082	0.000
2	Февруари	1.49	0.055	0.000
3	Март	1.96	0.048	0.000
4	Април	1.34	0.033	0.000
5	Май	2.20	0.022	0.000
6	Юни	1.59	0.024	0.000
7	Юли	1.95	0.026	0.013
8	Август	2.00	0.054	0.038
9	Септември	2.87	0.052	0.000
10	Октомври	1.84	0.020	0.009
11	Ноември	2.49	0.032	0.102
12	Декември	0.00	0.000	0,000

Завод за металург. оксиди

Атмосферно замърсяване на пункт ЗНО – 1992г.

Номер по ред	Месец	Прах мг/м^3	NO_2 мг/м^3	Фенол мг/м^3
ПДК		0.50	0.085	0.010
1	Януари	0.60	0.057	0.000
2	Февруари	1.34	0.022	0.000
3	Март	1.08	0.031	0.000
4	Април	1.56	0.030	0.000
5	Май	1.51	0.014	0.000
6	Юни	3.39	0.021	0.000
7	Юли	1.63	0.017	0.007
8	Август	1.36	0.028	0.013
9	Септември	1.96	0.013	0.010
10	Октомври	3.16	0.018	0.010
11	Ноември	2.32	0.083	0.073
12	Декември	2.88	0.091	0.056

Атмосферно замърсяване на пункт – ЗСВ 2и3 – 1992г.

Заводи за стъклени балони - 2, и 3

Номер по ред	Месец	Прах мг/м^3	NO_2 мг/м^3	Фенол мг/м^3
ПДК		0.50	0.085	0.010
1	Януари	0.20	0.065	0.000
2	Февруари	0.46	0.090	0.000
3	Март	1.17	0.025	0.000
4	Април	1.11	0.016	0.000
5	Май	1.19	0.022	0.000
6	Юни	1.23	0.054	0.003
7	Юли	1.26	0.017	0.012
8	Август	1.444	0.025	0.010
л 9	Септември	0.90	0.018	0.010
10	Октомври	1.33	0.039	0.010
11	Ноември	1.136	0.136	0.078
12	Декември	2.47	0.067	0.019