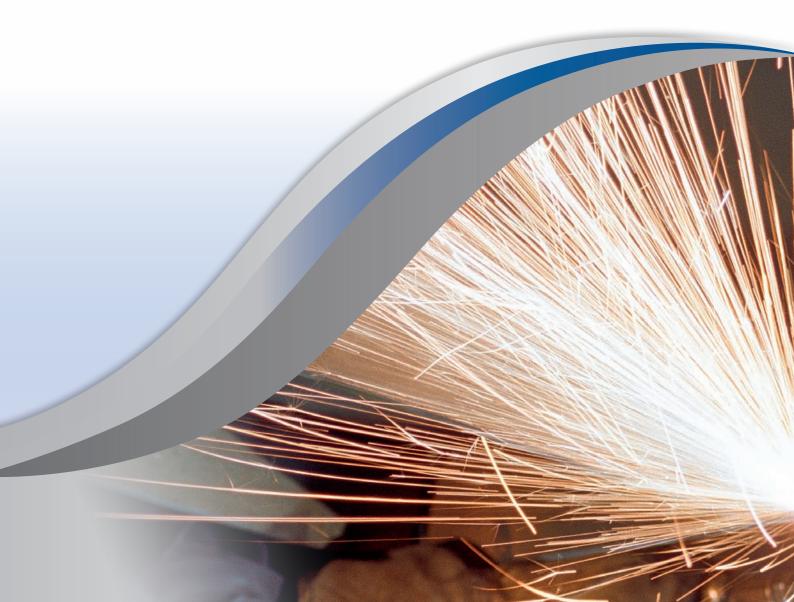


### Product catalogue

Long products, wheel tyres and rings



# About the Company

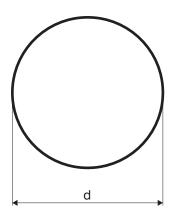
Huta Bankowa is Poland's biggest producer of railway wheel tyres that are sold to Polish carriers as well as exported to Thailand, Russia and Ukraine. The company owns Poland's most modern ring and tyre rolling mill that allows us to continuously broaden our range, and the high flexibility of our production line allows producing many non-standard products in small batch, even in singles.

The company specializes in niche steel products, such as the above-mentioned tyres, rolled and forged rings as well as long products: round bars of diameters 90-250mm, 200x200mm equal-leg angles and bulb flats for shipbuilding. Huta Bankowa's long products are mainly used in machining as well as in water transport and construction industry. High quality steel angles are used in the construction of buildings, whereas the round bars are used in unusual architectural projects of public buildings (schools, banks) and underground tunnels in Scandinavia.

Huta Bankowa also offers a wide range of rolled billets for further processing as well as normalization and quenching and tempering services.

Over half of the steelworks' production is exported to e.g. Germany, Austria, Czech Republic, Scandinavia and Benelux.

# Round bars



#### ROUND BARS ARE MANUFACTURED AS HOT-ROLLED OF THE FOLLOWING SIZES AND TOLERANCES:

Diameter	Tolerances of the Diameter	Length	Weight
d (mm)	EN 10060	L(m)	1 mb/kg
90 95 100	±1,3		49,9 55,6 61,7
105 110 115 120	±1,5		68,0 74,6 81,5 88,8
125 130 135 140 145 150 155 160	±2,0	3÷12 m or other dimensions within the range, tolerance of cutting +100/-0 mm	96,3 104 112 121 130 139 148 158
165 170 175 180 190 200	±2,5		168 178 189 200 223 247
210 225 230 250	±3,0	3÷6	272 312 326 385

#### MANUFACTURING SPECIFICATIONS

according to PN-H-93000:1984 – bars of common quality steel according to PN-H-93001:1985 – bars of quality steel according to EN standard

#### STRAIGHTNESS

Straightness deviation max. 0,25% of measured length

#### SPECIFICATIONS OF THE DELIVERY

Round bars are delivered as rolled, normalised, soft annealed, quenched and tempered.

#### PACKAGING

Round bars are delivered loose or in bundles of max. 3.5 ton weight.

### Round bars

#### ACCEPTANCE TESTS

Acceptance tests are performed according to conditions determined by Huta Bankowa's Quality Control Service or external representatives of Classifying Associations determined by the Customer. The test results are confirmed in the Certifications according to the EN 10204 Standard, items 2.2; 3.1; 3.2.

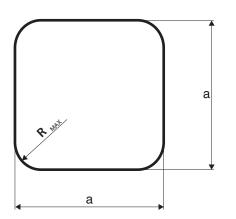
#### **GRADES OF STEEL**

Round bars are manufactured of carbon and alloy steel according to the EN 10025; EN 10083; EN 10084; EN 10273, DIN 17243 or other steel standards agreed while ordering. Grades of steel – see table below.

#### STEEL STANDARDS

No.	Standard No.	Grades of Steel
1	EN 10025-2	E295; E335; E360; S235JR; S235J0; S235J2; S275JR; S275J0; S275J2; S355JR; S355J0; S355J2; S355K2
2	EN 10025-3	S275N; S355N
3	EN 10083-1	C22E; C35E; C45E; C55E; 34CrNi C60E; 41Cr4; 34CrMo4; 42CrMo4; Mo6
4	EN 10084	C10E; C15E; 16MnCr5, 20MnCr5
5	PN-EN 10273	P235GH; P250GH; P265GH; P295GH; P355GH; 16Mo3
6	DIN 2528	C21
7	DIN 17243	C22.8
8	PN-H-84023/07:1989	R35; R45
9	PN-H-84024:1975	K10, K18
10	DIN 1629 (Acceptance of TÜV Hannover)	St37.0, St44.0; St52.0
11	DIN 17175 (Acceptance of TÜV Hannover)	St35.8, St45.8
12	PN-H-93011/96	35, 28Mn6; 30G2F; 34CrMo4
13	VdTÜV 311-12-89 VdTÜV 342-06-96	34CrMo4
14	PN-H-92147:1993 Acceptance regulations of maritime associations: PRS, LRS, GL, DNV, BV, ABS, RINA	A; B; AH32; AH36; DH32; DH36

### Square billets



#### SQUARE BILLETS ARE MANUFACTURED AS HOT-ROLLED OF THE FOLLOWING SIZES AND TOLERANCES

Side of the square	Tolerance of the square's side	Radius	Length	Weight
a (mm)	A (mm)	R <sub>max</sub> (mm)	L(m)	1 mb/kg
80 90	+2,0/-3,0	12	2÷8*m or other	49,3 62,6
100		15	dimensions within the	77,0
110 120	+2,5/-3,5	18	range, tolerance of	93,0 111,0
130 140	+3,0/-4,0	21	cutting +100/- 0 mm	124,2 151,0

\* fixed lenght with tolerance +100/–0 mm can be offer after agreement

Side of the	MAX. DIMENSIO	NAL DEVIATION	
square	Standard accurancy of production	Increased accurancy of production	Length
a (mm)	mm	mm	m
140			
150			
160	+/-5	+/-3,5	
170	+/-5		
180			
190		+1-4	2-6*
200	+1-6	.//5	2-0
220	+1-0	+/-4,5	
240	+1-7	+/-5	
260			
280	+1-8	+/-6	
300			

\* Corner radius – resulting from barrel type rolling.

#### MANUFACTURING SPECIFICATIONS

according to PN-H-93020: 1981 – dimensions according to PN-H-93021: 1989 – die forging according to PN-H-93022: 1989 – rolling and forging according to PN-H-93000: 1984 – common quality steel for machining according to PN-H-93001: 1985 – according to quality steel for machining according to EN standard

# Square billets

#### **STRAIGHTNESS**

Straightness tolerance max. 2% of the measured length

#### SPECIFICATIONS OF THE DELIVERY

Billets are delivered as rolled, soft annealed or normalised.

#### PACKAGING

Billets are delivered loose or in bundles of max. 3.5 ton weight

#### ACCEPTANCE TESTS

Acceptance tests are performed according to conditions determined by Huta Bankowa's Quality Control Service or external representatives of Classifying Associations determinated by the Customer. The test results are confirmed in the Certifications according to the EN 10204 Standard, items 2.2; 3.1; 3.2.

#### **GRADES OF STEEL**

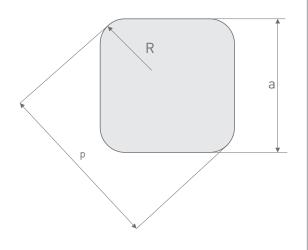
Square billets are manufactured of carbon and alloy steel according to the EN 10025; EN 10083; EN 10084; EN 10273 or/and other agreed steel standards while ordering. Grades of steel – see table below.

No.	Standard No.	Grades of Steel
1	EN 10025-2	E295; E335; E360; S235JR; S235J0; S235J2; S275JR; S275J0; S275J2; S355JR; S355J0; S355J2; S355K2
2	EN 10025-3	S275N; S355N
3	EN 10083-1	C22E; C35E; C45E; C55E; 34CrNi C60E; 41Cr4; 34CrMo4; 42CrMo4; Mo6
4	EN 10084	C10E; C15E; 16MnCr5, 20MnCr5
5	PN-EN 10273	P235GH; P250GH; P265GH; P295GH; P355GH; 16Mo3
6	DIN 2528	C21
7	DIN 17243	C22.8
8	PN-H-84023/07:1989	R35; R45
9	PN-H-84024:1975	K10, K18
10	DIN 1629 (Acceptance of TÜV Hannover)	St37.0, St44.0; St52.0
11	DIN 17175 (Acceptance of TÜV Hannover)	St35.8, St45.8
12	PN-H-93011/96	35, 28Mn6; 30G2F; 34CrMo4
13	VdTÜV 311-12-89 VdTÜV 342-06-96	34CrMo4
14	PN-H-92147:1993 Acceptance regulations of maritime associations: PRS, LRS, GL, DNV, BV, ABS, RINA	A; B; AH32; AH36; DH32; DH36

# Square rods for gas bottles



Side of the square	Diagonal	Max. difference between diagonal	Radius
a (mm)	p (mm)	(mm)	R (mm)
130	166 +2/-3	5	>20
150	193,9 +3/-3	5	>22
200	247 +3/-4	6	>30



#### MANUFACTURING SPECIFICATIONS

According to PN-H-93011:1996 According to VdTÜV-Werkstoffblatt 311-12.89 According to VdTÜV-Werkstoffblatt 342-06.96

#### **STRAIGHTNESS**

Non-straightened rods: permissible deviation 10 mm/m.

#### SPECIFICATIONS OF THE DELIVERY

Square rods are delivered as rolled or soft annealed.

#### PACKAGING

Square rods are delivered as loose (no package).



## Square rods for gas bottles

#### ACCEPTANCE TESTS

Acceptance tests are performed according to PN-H-93011:1996 and VdTÜV-Werkstoffblatt 311-12.89 and 342-06.96 standards. The test results are confirmed in the Certifications according to the EN 10204 Standard, items 3.1; 3.2.

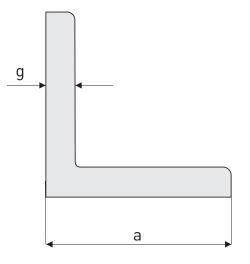
#### **GRADES OF STEEL**

Square rods for gas bottles are manufactured of carbon and alloy steel specified in PN-H-93011:1996 Standard as well as VdTÜV-Werkstoffblatt 311 and VdTÜV-Werkstoffblatt 342. Grades of steel as per table below.

No.	Standard No.	Grades of Steel
1	PN-H-93011/96	35, 28Mn6; 30G2F; 34CrMo4
2	VdTÜV 311-12-89 VdTÜV 342-06-96	34CrMo4



## Angles



#### ANGLES ARE MANUFACTURED AS HOT-ROLLED OF THE FOLLOWING SIZES AND TOLERANCES:

Notation	Length	Weight
(mm)	L(m)	1 mb (kg)
200x200x16,18, 20	3÷12 or other dimensions within the range, tolerance of cutting +100/-0 mm	48.5, 54.3, 59.9

#### MANUFACTURING SPECIFICATIONS

according to PN-H-93010:1991 according to EN-10163-3 according to EN-10056-1 – 2 dimensions and tolerances

#### STRAIGHTNESS

Straightness deviation max. 0,2% of measured length

#### SPECIFICATIONS OF THE DELIVERY

Angles are delivered as rolled.

#### PACKAGING

Angles are delivered in bundles of max 3,5 ton weight.

#### ACCEPTANCE TESTS

Acceptance tests are performed according to conditions stipulated in appropriate standards, as determined by Huta Bankowa Company's Quality Control Service and UDT and/or to regulations of the maritime quality organizations such as: PRS, LRS, GL, DNV, BV, RINA. The test results are confirmed in the Certifications according to Standard, items 3.1; 3.2.

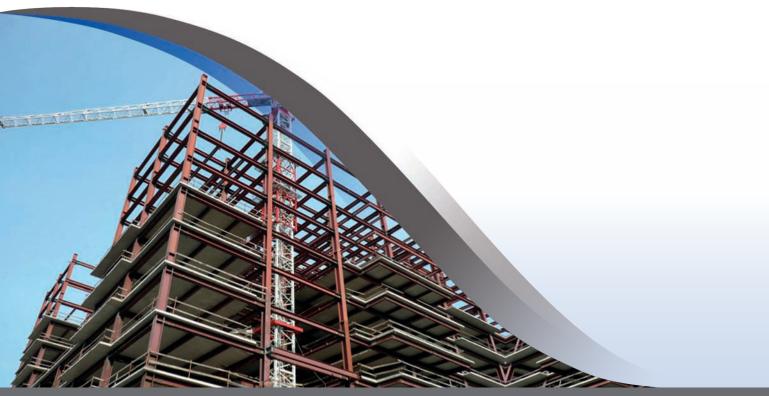


# Angles

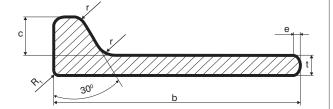
#### **GRADES OF STEEL**

Angles are manufactured of carbon steel according to the EN 10025. Grades of steel table below.

No.	Standard No.	Grades of Steel
1	EN 10025-2	E295; E335; E360; S235JR; S235J0; S235J2; S275JR; S275J0; S275J2; S355JR; S355J0; S355J2; S355K2
2	PN-H-92147:1993 Acceptance regulations of maritime associations: PRS, LRS, GL, DNV, BV, ABS, RINA	A; B; AH32; AH36; DH32; DH36



### **Bulb flats**



#### BULB FLATS ARE MANUFACTURED AS HOT-ROLLED OF THE FOLLOWING SIZES AND TOLERANCES:

#### ACCORDING TO EN 10067

Notation	Dimensions			Tolerances		
(mm)	b (mm)	t (mm)	c (mm)	r (mm)	b (mm)	t (mm)
HP 220x10, 11,5, 12 HP 240x10, 11, 12 HP 260x10, 11, 12 HP 280x11, 12, 13 HP 300x11, 12, 13	220 240 260 280 300	10, 11, 12 10, 11, 12 10, 11, 12 11, 12, 13 11, 12, 13	31 34 37 40 43	9 10 11 12 13	±3.0	+1.0 -0.4

R<sub>1</sub> = 2 ÷ 7 mm e = max.4 mm – as per the Huta Bankowa Ltd Technical Specifications

#### MANUFACTURING SPECIFICATIONS

according to PN-H-92147: 1993 according to EN 10067 and/or according to quality organizations

#### **STRAIGHTNESS**

Straightness tolerance: max 0,0035 of measured length.

#### SPECIFICATIONS OF THE DELIVERY

Bulb flats are delivered as rolled.

#### PACKAGING

Bulb flats are delivered in bundles of max. 3.5 ton weight.

### **Bulb flats**

Grupa

#### ACCEPTANCE TESTS

Acceptance tests are performed according to specifications as determined by Huta Bankowa Company's Quality Control Service, MK, and/or according to regulations of the marine quality organizations such as: PRS, LRS, GL, DNV, BV, RINA. The test results are confirmed in the Certifications according to the EN 10204 Standard, items 3.1; 3.2.

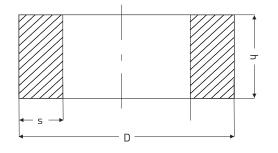
#### **GRADES OF STEEL**

Bulb flats are manufactured of carbon steel according to the PN-93/H-92147:1993 Standard and marine qualification regulations of PRS, LRS, GL, DNV, BV, ABS, RMRS. Grades of steel table below.

No.	Standard No.	Grades of Steel
1	PN-H-92147:1993 Acceptance regulations of maritime associations: PRS, LRS, GL, DNV, BV, ABS, RINA	A; B; AH32; AH36; DH32; DH36



# Rolled rings



#### PROFILE CONTOUR:

rectangular, square

#### DIMENSIONS:

Outer diameter (D): Height (h): Wall thickness (s): Minimal unit weight: Maximal unit weight: 280 ÷ 3600 mm 35 ÷ 560 mm 30 ÷ 400 mm 1000 kgs 2500 kgs

Rings of outer diameter over 2400 mm, height 400 mm and weight below 100 kg or above 2000 kg should be agreed while ordering.

#### MANUFACTURING SPECIFICATIONS

according to PN-H-94004:1984 – forgings for general purposes according to PN-H-94009:1992 – forgings for pressure equipment according to PN-H-94023: 2000 – rolled rings from non-alloy and alloy steels

according to EN 10222 –  $(1\div2)$  forgings for pressure equipment according to EN 10250 –  $(1\div4)$  forgings for general purposes

#### SPECIFICATIONS OF THE DELIVERY

*Rings are delivered as: rolled, soft annealed, normalised, quenched and tempered or supersaturated.* 

#### ACCEPTANCE TESTS

Acceptance tests are performed according to specifications of appropriate standards, as determined by the Huta Bankowa Company's Quality Control Service, UDT, TÜV, PRS, LRS, GL, DNV, BV, ABS.

#### **ULTRASONIC TESTS**

according to SEP 1921- BN-86/0601-09/ PN-EN10228-3

#### **APPROVALS**

Huta Bankowa holds an approval for rings manufacture issued by TÜV Nord, UDT, PRS and BV, RS.

#### MACHINING

Rings are delivered as rolled, roughly machined or machined upon an agreement of manufacturing specifications.

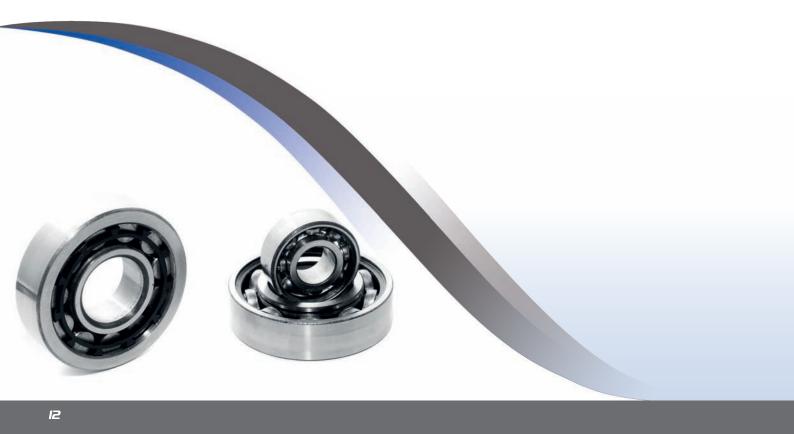
# Rolled rings

alchemia

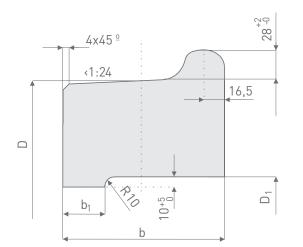
#### **GRADES OF STEEL**

Rings are manufactured of carbon and alloy steel according to Polish and foreign standards agreed while ordering. Grades of steel – see table below.

No.	Standard No.	Grades of Steel
1	PN-H-84030:1989	16HG; 30G2; 40H; 40HM; 45HN; 25HM
2	PN-H-84032:1974	65; 50HF
3	PN-H-84035:1972	20H2N4A
4	PN-H-94021:1997	ŁH15SG, ŁH20M
5	EN 10025	S235JRG2; S275JR; S355JO; S355J2G3; S355J2G4
6	EN 10028-2	P235GH; P265GH; P295GH; P355GH; 16Mo3
7	EN 10028-6	P460QH
8	EN 10113-2	S355NL
9	EN 10222-2	P245GH; P280GH; P305GH
10	EN 10222-4	P355QH1; P355NH
11	EN 10083	41Cr4; 42CrMo4; 34CrNiMo6; C45; C60
12	EN 10088-1	X10Cr13; X2CrNi19-11; X2CrNiMo17-12-2; X6CrNiMoTi17-12-2
13	ASTMA182	304L;316L
14	DIN 17230	100Cr6
15	DIN 17243	C22.8
16	ASTMA105	A105
17	EN 10273	P250GH



# Railway wheel tyres



#### ROUGH WHEEL TYRES FOR WHEEL SETS OF RAILWAY ROLLING STOCK ARE MANUFACTURED AS FORGED AND ROLLED OF THE FOLLOWING SIZES AND TOLERANCES: ACC. PN-9I/K-9I032

Size	D		<b>D</b> <sub>1</sub>		b*		b,		Weight
(mm)	(m	(mm)		(mm)		(mm)		n)	1 pcs (kg)
850	855		690					265	
920	925		760		139		40		295
940	945		800	+0/-10	137		40	+3/-0	265
960	965	+8/-0	800 840 880			+3/-1			310
1000	1005	+8/					30		320
1040	1045				144				330
1100	1105		940		144			-	360
1250	1255		1090		-		-		415

\*tolerance of the wheel tyres width at a marking place: ≤ 5 mm other sizes and tolerances to be agreed while ordering

#### MANUFACTURING SPECIFICATIONS

according to PN-K-91032: 1991 – dimensions and measurements according to PN-K-91042: 1993 – requirements and testing according to PN-H-84027-06: 1984 – steel grades according to UIC 810-1 – requirements and testing according to UIC 810-2 – tolerances of dimensions according to BS 5892 cz.4/1992 – manufacturing and testing according to GOST 398 – requirements and testing according to DSTU 3717-98 – dimensions and measurements according to GOST R 52366-2005 – dimensions and measurements according to GOST 5000-83 – dimensions and measurements



#### SPECIFICATIONS OF THE DELIVERY

Rough wheel tyres are delivered as normalised or quenched and tempered condition.

#### PACKAGING

Wheel tyres are delivered loose (no package), packed in bundles of 3-4 pcs. or on pallets on agreed means of transport.

#### ACCEPTANCE TESTS

Acceptance tests are performed according to specifications of appropriate standards, determined by Huta Bankowa Company's Quality Control Service, and/or indicated by the Customer. The test results are confirmed in the Certifications according to the EN 10204 Standard, items 3.1; 3.2.

#### **GRADES OF STEEL**

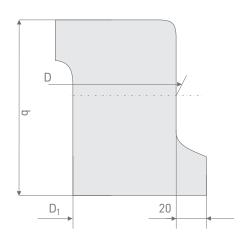
No.	Standard	Grades of steel		
1	PN-H-84027-6:1984	P54, P55A, P60		
2	UIC 810-1	B1÷B6		
3	BS 5892 cz.4/92 r.	B1÷B7		
4	GOST 398-96	2;3		

other grades to be agreed while ordering



# Tramway tyres

#### ROUGH TRAMWAY TYRES FOR TRAM WHEEL SETS ARE MANUFACTURED AS FORGED AND ROLLED OF THE FOLLOWING SIZES AND TOLERANCES:



Outer D	liameter D	Inside D [	liameter ),	Width b		
Scope	Tolerance	Scope	Tolerance	Scope	Tolerance	
400-750	+14 -4	270-600	+4 -8	90-124	±3	

Other dimensions and tolerances to be agreed while ordering.

#### MANUFACTURING SPECIFICATIONS

according to BN-91/3554-06 according to UIC 810-1 wyd. V

#### SPECIFICATIONS OF THE DELIVERY

Rough tyres are delivered as quenched and tempered.

#### PACKAGING

Tyres are delivered loose, in bundles or on pallets on agreed means of transport.

# Tramway tyres

Grupa

#### ACCEPTANCE TESTS

Acceptance tests are performed according to conditions inclited in appropriate standards determined by the Huta Bankowa's Quality Control Service or external representatives of Classifying Associations determinated by the Customer. The test results are confirmed in the Certifications according to the EN 10204 Standard, items 3.1; 3.2.

#### **GRADES OF STEEL**

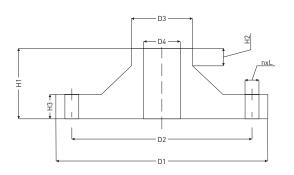
No	Standard	Grades of steel
1	PN-H-84027-6:1984	P60, P70
2	UIC 810-1	B1 ÷ B6
3	BS 5892 cz. 4/92 r.	B1 ÷ B7

other grades to be agreed while ordering

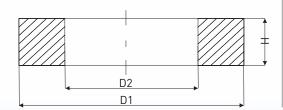


# STEEL FLANGES

# Neck flanges



# Flat flanges



#### MANUFACTURING SPECIFICATIONS

PN-EN 1092-1 Flanges and fittings. Round flanges for tubes, fittings, connectors with PN marking. PN-ISO 7005-1 Steel flanges PN-H-74710-02÷08:1987 Neck flanges for welding for nominal pressure 0,63; 1; 1,6; 2,5; 4; 6,3; 10 MPa PN-H-74731:1987 Fittings and pipelines. Flat flanges for welding for nominal pressure 0,25-1,6 MPa PN-H-74738:1988 – Fittings and pipelines. Slack flanges with neck rings for welding for nominal pressure 0,25-10 Mpa ANSI and DIN Standards

#### SPECIFICATIONS OF THE DELIVERY

Flanges are delivered as: rolled, soft annealed, normalised.

#### ACCEPTANCE TESTS

Acceptance tests are performed according to conditions inclited in appropriate standards determined by the Huta Bankowa's Quality Control Service or external representatives of Classifying Associations determinated by the Customer. The test results are confirmed in the Certifications according to the EN 10204 Standard, items, 3.1; 3.2.

#### **ULTRASONIC TESTS**

according to SEP 1921 EN 10228-3

# Flat flanges

Grupa Ichemia

#### MACHINING

Flanges are delivered as: roughly machined or machined upon an agreement of manufacturing specifications.

#### **GRADES OF STEEL**

Flanges are manufactured of carbon and alloy steel according to Polish and foreign standards agreed while ordering. Grades of steel – see table below.

No.	Standard No.	Grades of Steel
1	PN-H-84030:1989	16HG; 30G2; 40H; 40HM; 45HN; 25HM
2	PN-H-84032:1974	65; 50HF
3	PN-H-84035:1972	20H2N4A
4	PN-H-94021:1997	ŁH15SG, ŁH20M
5	EN 10025	S235JRG2; S275JR; S355JO; S355J2G3; S355J2G4
6	EN 10028-2	P235GH; P265GH; P295GH; P355GH; 16Mo3
7	EN 10028-6	P460QH
8	EN 10113-2	S355NL
9	EN 10222-2	P245GH; P280GH; P305GH
10	EN 10222-4	P355QH1; P355NH
11	EN 10083	41Cr4; 42CrMo4; 34CrNiMo6; C45; C60
12	EN 10088-1	X10Cr13; X2CrNi19-11; X2CrNiMo17-12-2; X6CrNiMoTi17-12-2
13	ASTMA182	304L;316L
14	DIN 17230	100Cr6
15	DIN 17243	C22.8
16	ASTMA105	A105
17	EN 10273	P250GH



### Approvals of classifying associations scope

#### LLOYD'S REGISTER OF SHIPPING

Sections for ship-building applications, steel grade A, B, AH27S, DH27S, AH32, AH36, DH32, DH36 up to thickness max. 20 mm Round bars in grade A, carbon steel, carbon-manganese, as-rolled and normalized quenched and tempered up to max. 250 mm with minimum reduction ratio 6:1

Bars for anchor chains, up to 160 mm dia, U1, U2 grade of steel

#### **GERMANISCHER LLOYD**

Round bars and bulb flats steel grades GL-AS to GL-ES and GL-A32S to GL-E36  $\,$ 

Round bars for anchor chains, of GL-K2 grade Hot rolled round bars up to 250 mm dia, from carbon, manganesecarbon or alloy steel acc. to EN 10025-2, EN 10083-2 and -3, EN 10084

#### **DET NORSKE VERITAS**

Sections for shipbuilding up to 30 mm max. thickness, NVA, 13 mm in grade: NVB, 20 mm, NVA32, NVD32, NVA36, NVD36 Round bars up to 200 mm dia, NVA grade

#### **BUREAU VERITAS**

Hot rolled sections and bars of A, AH32, AH36 grade Hot rolled round bars for Diesel motor stays Hot rolled round bars for anchor chain applications Hot forged/rolled steel rings for general applications Grades of steel acc. to BV rules and/or legal regulations

#### AMERICAN BUREAU OF SHIPPING

Bulb flats, grades: A, B, AH32, AH36, DH32, DH36, AH acc. to ABS regulations

#### POLISH REGISTER OF SHIPS

Bulb flats in grades A, AH32, AH36 Round bars in grade A and steel grades acc. to EN 10025-2, EN 10083-1, EN 10084 Seamless forged-rolled rings in steel grade acc. to PN-H-84032, EN 10025-2, EN 10028-2, EN 10028-6, EN 10083-1 Certification of the Testing Laboratory according to Polish Register of Ships specifications

### Approvals of classifying associations scope

#### TECHNICAL INSPECTION BUREAU

Manufacturing of bars, billets, sections and forged and rolled rings for technical installation construction and/or repair applications, subjected to technical inspection

Approval of the Testing Laboratory

#### **RINA**

Bulb flats in grades A, B, AH32, AH36, DH32, DH36

#### **TÜV NORD ANLAGENTECHNIK**

Approval of Huta Bankowa as a producer of semi-products according to directive 97/23/WE referring pressure equipment and AD 2000 W0 including: forged and rolled rings and hot-rolled round, bars made for ferritic materials and semi-products

### INSTITUTIONS FOR RESEARCH AND CERTIFICATION "ZETOM"

Authorization for "CE" marking for round bars in dimension  $\emptyset$  90÷250 mm and equal-leg angles size 200x200x16÷20 mm according to EN 10025-2-3

#### QUALIFICATION CERTIFICATE OF SYSTEMS AND PRODUCTS TO BE USED IN POLISH STATE RAILWAYS

Rough railway wheel tyres for rail-vehicle wheel sets

#### PAŃSTWOWY SYSTEM CERTYFIKACJI UKR SEPRO

Rough railway wheel tyres for standard-gauge track wheel sets

#### REJESTR CERTYFIKACJI FEDERALNEGO TRANSPORTU KOLEJOWEGO ("RS FZT")

Rough railway for railway rolling stock





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