

HOT ROLLED AND PICKLED PRODUCTS



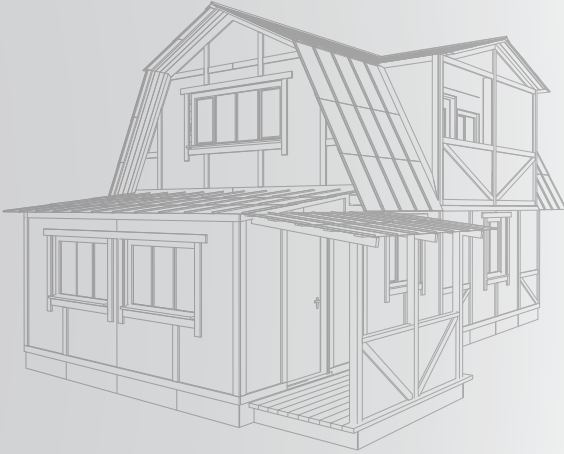
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ABOUT US

YILDIZ DEMİR ÇELİK is the investment in the iron and steel sector of YILDIZLAR YATIRIM HOLDİNG that is making major investments in Türkiye and in the world.

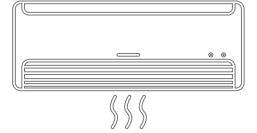
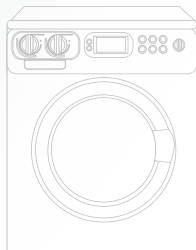
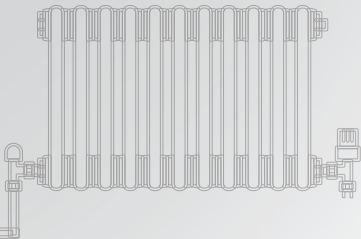
Established in 2018, Yıldız Demir Çelik is the first iron and steel facility in Türkiye that uses recycled Gray Water in production.



Our Mission

Why do we exist?

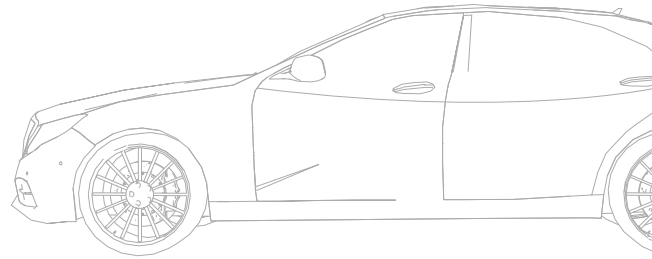
We exist to increase the **competitive advantage** of our business partners with our value-added products.



Our Vision

Where are we running?

Until 2030, we will become a global brand that has been integrated into iron and steel and leaves a mark in every area **where steel comes to life.**



Our Values

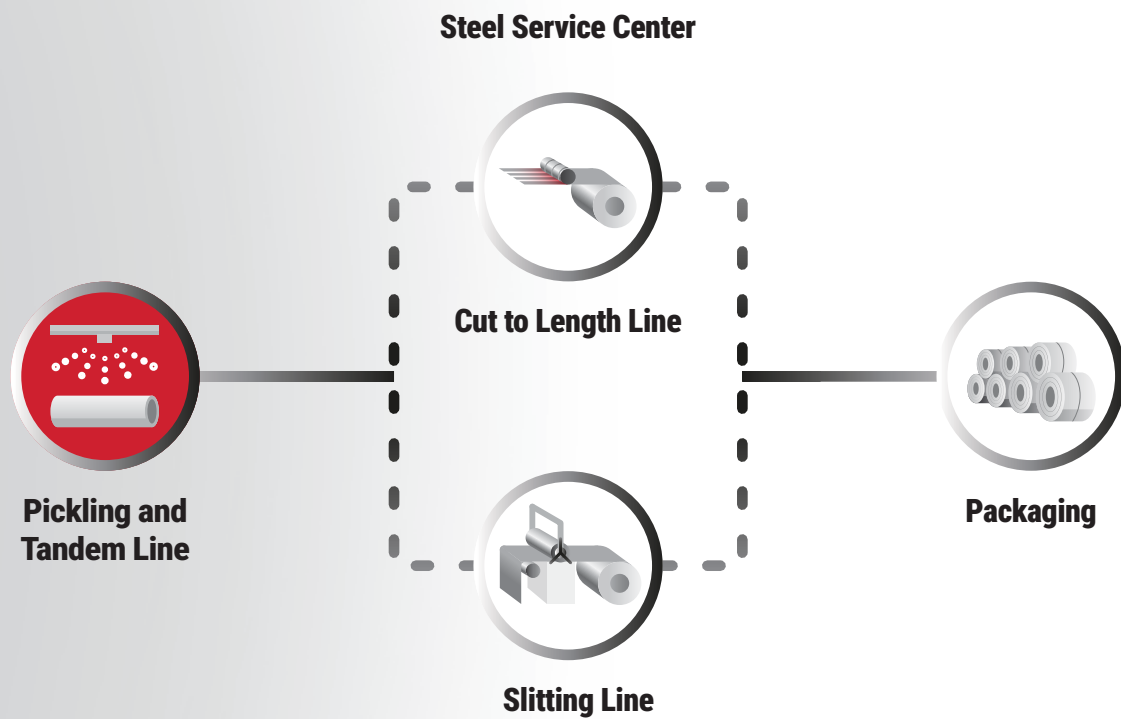
Where do we get our strength from?

From saying '**Human First**'.
From our **innovative perspective**.
From our **passion for quality**.
From our **determination to succeed**.
From being **one heart** for the same goal

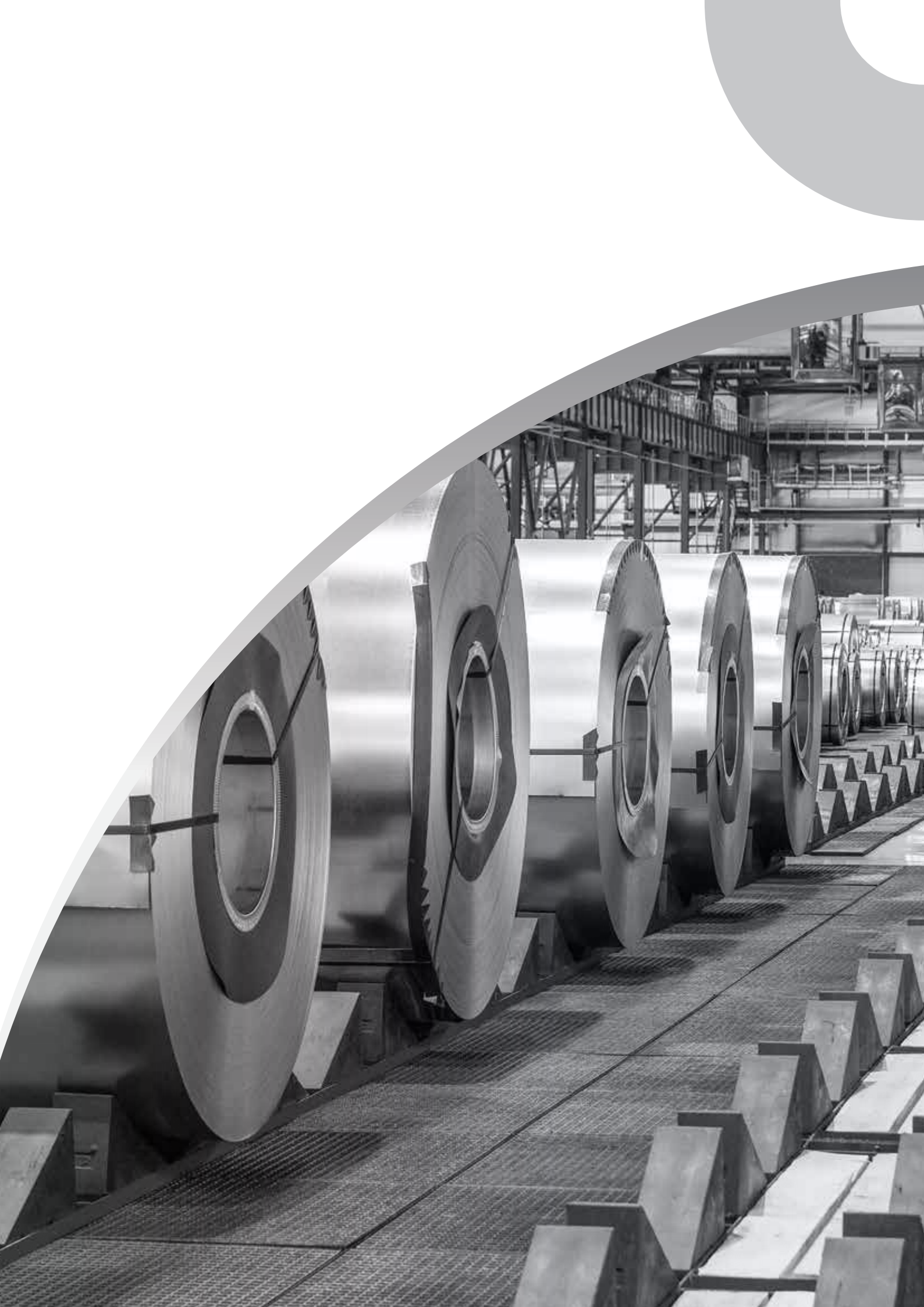
Quality System Certifications



Production Lines



*Steel Service Center service is provided upon customer request.



HOT ROLLED AND PICKLED PRODUCTS

Production Limits

Thickness	1,20-5,00 mm
Width	700-1600 mm
Inner Diameter	610 mm
Max.Coil Weight	30 ton





HOT ROLLED AND PICKLED PRODUCTS





Hot Rolled And Pickled Products

Product Description

It is the state of hot rolled products purified from surface scale by passing through the pickling process. Protection from atmospheric corrosion is ensured by lubrication after pickling.

Product Name and Descriptions

PHR: Pickled hot rolled coil

PHRM : Pickled hot rolled coil without trimmed edge

Hot Rolled And Pickled Products

Hot Rolled and Pickled Products for Cold Forming

Standart: EN 10111:2009

CHEMICAL COMPOSITION (%)

Standard	Grade	C max.	Mn max.	P max.	S max.
EN 10111	DD11	0,12	0,60	0,045	0,045
	DD12	0,10	0,45	0,035	0,035
	DD13	0,08	0,40	0,030	0,030
	DD14	0,08	0,35	0,025	0,025

MECHANICAL PROPERTIES

Standard	Grade	R _e N/mm ²		R _m ⁽¹⁾ max N/mm ²	A (%) min.			
		1,5 ≤ t < 2	2 ≤ t ≤ 5		A ₈₀			A ₅
					t<1,5	1,5≤t<2	2≤t<3	3≤t<5
EN 10346	DD11	170-360	170-340	440	22	23	24	28
	DD12	170-340	170-320	420	24	25	26	30
	DD13	170-330	170-310	400	27	28	29	33
	DD14	170-310	170-290	380	30	31	32	36

Remarks:

1. Tensile test values are applied to "transverse" test specimens.

Hot Rolled And Pickled Products

Hot Rolled and Pickled Unalloyed Structural Steels

Standart: EN 10025-2:2019

CHEMICAL COMPOSITION (%)									
Standard	Grade	C	Mn	P	S	Si	Cu	N	CEV (IIW) ⁽¹⁾ max. (%)
		max	max	max	max	max	max	max	t ≤ 30 mm
EN 10025-2	S235JR	0,17	1,40	0,035	0,035	-	0,55	0,012	0,35
	S235J0	0,17	1,40	0,030	0,030	-	0,55	0,012	0,35
	S235J2	0,17	1,40	0,025	0,025	-	0,55	-	0,35
	S275JR	0,21	1,50	0,035	0,035	-	0,55	0,012	0,40
	S275J0	0,18	1,50	0,030	0,030	-	0,55	0,012	0,40
	S275J2	0,18	1,50	0,025	0,025	-	0,55	-	0,40
	S355JR	0,24	1,60	0,035	0,035	-	0,55	0,012	0,45
	S355J0	0,20	1,60	0,030	0,030	0,55	0,55	0,012	0,45
	S355J2	0,20	1,60	0,025	0,025	0,55	0,55	-	0,45

Remarks:

1. C equivalent is calculated according to the formula $CEV (IIW) \% = C + Mn / 6 + (Cr + Mo + V) / 5 + (Ni + Cu) / 15$.
2. For grades not included in the table, please contact the Customer Technical Services Department.

Hot Rolled And Pickled Products

Hot Rolled and Pickled Unalloyed Structural Steels

Standart: EN 10025-2:2019

MECHANICAL PROPERTIES									
Standard	Grade	R _e (min) N/mm ²	R _m ⁽¹⁾ N/mm ²		A (%) min.				
					A ₈₀				A ₅
			t < 3	t ≥ 3	1 < t 1,5	1,5 < t ≤ 2	2 < t ≤ 2,5	2,5 < t ≤ 3	3 < t
EN 10025-2	S235JR	235	360-510	360-510	18	19	20	21	26
	S235J0	235	360-510	360-510	18	19	20	21	26
	S235J2	235	360-510	360-510	16	17	18	19	24
	S275JR	275	430-580	410-560	16	17	18	19	23
	S275J0	275	430-580	410-560	16	17	18	19	23
	S275J2	275	430-580	410-560	14	15	16	17	21
	S355JR	355	510-680	470-630	15	16	17	18	22
	S355J0	355	510-680	470-630	15	16	17	18	22
	S355J2	355	510-680	470-630	15	16	17	18	22

Remarks:

1. Tensile test values are applied to "transverse" test specimens.
2. For grades not included in the table, please contact the Customer Technical Services Department.

Hot Rolled And Pickled Products

Hot Rolled and Pickled Products Used in Under Low Pressure

Standart: EN 10207:2017

CHEMICAL COMPOSITION (%)

Standard	Grade	C max.	Mn	P max.	S max.	Si max.
EN 10207	P275SL	0,16	0,05-1,50	0,025	0,020	0,040

MECHANICAL PROPERTIES

Standard	Grade	R _e (min) N/mm ²	R _m N/mm ²	A (%) min.		
				A ₈₀		A ₅
				t ≤ 2	2,5 < t < 3	3 ≤ t ≤ 5
EN 10207	P275SL	275	390-510	19	20	24

Remarks:

1. Tensile test values are applied to "transverse" test specimens.

Hot Rolled And Pickled Products

Hot Rolled and Pickled Products Used in Welded Tube Manufacturing

Standart: EN 10120:2017

CHEMICAL COMPOSITION (%)										
Standard	Grade	C max.	Mn max.	P max.	S max.	Si max.	Al _{total} max.	N max.	Nb max.	Ti max.
EN 10120	P245NB	0,16	0,30	0,025	0,015	0,25	0,02	0,009	0,05	0,03
	P265NB	0,19	0,40	0,025	0,015	0,25	0,02	0,009	0,05	0,03
	P310NB	0,20	0,70	0,025	0,015	0,50	0,02	0,009	0,05	0,03
	P355NB	0,20	0,70	0,025	0,015	0,50	0,02	0,009	0,05	0,03

MECHANICAL PROPERTIES					
Standard	Grade	R _e (min) N/mm ²	R _m N/mm ²	A (%)	
				A _{80 min.}	A ₅
				t < 3	3 ≤ t ≤ 5
EN 10120	P245NB	275	390-510	26	34
	P265NB	275	390-510	24	32
	P310NB	275	390-510	21	28
	P355NB	275	390-510	19	24

Remarks:

1. Tensile test values are applied to "transverse" test specimens.

Hot Rolled And Pickled Products

Hot Rolled and Pickled Products Used in Pressure Boiler Manufacturing

Standart: EN 10028-2:2017

CHEMICAL COMPOSITION (%)														
Standard	Grade	C	Mn	P max.	S max.	Si max.	Al _{total} min.	N max.	Cr max.	Cu max.	Mo max.	Nb max.	Ti max.	V max.
EN 10028-2	P235GH	0,16 max	0,60-1,20	0,025	0,010	0,35	0,02	0,012	0,30	0,30	0,08	0,02	0,03	0,02
	P265GH	0,20 max	0,90-1,40	0,025	0,010	0,40	0,02	0,012	0,30	0,30	0,08	0,02	0,03	0,02
	P295GH	0,08-0,20	0,90-1,50	0,025	0,010	0,40	0,02	0,012	0,30	0,30	0,08	0,02	0,03	0,02
	P355GH	0,10-0,22	1,10-1,70	0,025	0,010	0,60	0,02	0,012	0,30	0,30	0,08	0,04	0,03	0,02

MECHANICAL PROPERTIES				
Standard	Grade	R _e (min) N/mm ²	R _m ⁽¹⁾ N/mm ²	A (%) min.
EN 10028-2	P235GH	235	360-480	24
	P265GH	265	410-530	22
	P295GH	295	460-580	21
	P355GH	355	510-650	20

Remarks:

1. Tensile test values are applied to "transverse" test specimens.

Hot Rolled And Pickled Products

Hot Rolled and Pickled High Strength Low Alloy Products for Cold Forming

Standart: EN 10149-2:2014

CHEMICAL COMPOSITION (%)										
Standard	Grade	C max.	Si max.	Mn max.	P max.	S max.	Al max.	Nb ⁽¹⁾ max.	V ⁽¹⁾ max.	Ti ⁽¹⁾ max.
EN 10025-2	S315MC	0,12	0,50	1,2	0,025	0,020	0,02	0,09	0,2	0,15
	S355MC	0,12	0,50	1,4	0,025	0,020	0,02	0,09	0,2	0,15
	S420MC	0,12	0,50	1,6	0,025	0,015	0,02	0,09	0,2	0,15
	S460MC	0,12	0,50	1,6	0,025	0,015	0,02	0,09	0,2	0,15
	S500MC	0,12	0,50	1,7	0,025	0,015	0,02	0,09	0,2	0,15
1. Nb + V + Ti ≤ 0,22										

MECHANICAL PROPERTIES						
Standard	Grade	R _e (min) N/mm ²	R _m ⁽¹⁾ N/mm ²	A (%) min.		Katlama Mandrel Çapı (Enine 180°)
				A ₈₀	A ₅	
				t < 3	t ≥ 3	Thickness(t) mm
EN 10149-2	S315MC	315	390-510	20	24	0
	S355MC	355	430-550	19	23	0,5 t
	S420MC	420	480-620	16	19	0,5 t
	S460MC	460	520-670	14	17	1 t
	S500MC	500	550-700	12	14	1 t

Remarks:

1. Nb + V + Ti ≤ 0,22
2. Tensile test values are applied to "longitudinal" test specimens.

Advantages of Hot Rolled And Pickled Products



Cost advantage



Strength



Formability



Weldability



Corrosion resistance



Paintability



Recycling Possibility

Hot Rolled And Pickled Products Usage Areas

- **Automotive**
- **Automotive Sub-Industryt**
- **Wheel Rim Manufacturing**
- **Construction**
- **General Manufacturing**
- **Pressurized Vessel Manufacturing**



Production Limits

Hot Rolled And Pickled Products

Product Type	Suitable for Cold Forming	Structural Steels	Suitable for Hot Forming	Pressure Vessel Steels		
Grade	Suitable for Drawing and Deep Drawing Steel	Medium and High Strength Steels	Low Alloy Medium and High Strength Steels	Used in Under Low Pressure Steels	Used in Welded Tube Manufacturing Steels	Used in Pressure Boiler Manufacturing Steels
	DD11-DD12 DD13-DD14	S235JR-S275JR S355JR	S315MC-S355MC S420MC-S460MC S500MC	P275SL	P245NB-P265NB P315NB-P355NB	P235GH-P265GH P295GH-P355GH
Thickness (t) mm	Width (w) mm					
	Min.			Max.		
1,20-5,00	700			1600		

Production Limits

Remarks:

1. The maximum order width for trimmed edge (PHR) products is 1600 mm.
2. Coil inner diameter is 610 mm. Minimum coil outside diameter is subject to negotiation. The maximum coil outside diameter is 2100 mm.
3. Maximum coil weight is 30,000 kg. Requests under 10.000 kg are subject to negotiation.
4. Surface flatness tolerance is applied for sheets cut to length from rolls and not for coils.
5. Coil breakage is not guaranteed.
6. Complaints of edge cracks and other edge defects on products without trimming edge are not accepted.
7. Products which surface cleaned with acid are lubricated against corrosion and packaged, unless otherwise stated.
8. Yıldız Demir Çelik is not responsible for any corrosion that may occur on the surface if the lubrication level is "low oil" or lubrication is not desired. The normal amount of oil is applied as 2000 mg/m² in total.
9. For information on the availability of unspecified grades, please contact the Customer Technical Services Department.

Hot Rolled Product Dimension Tolerances

Standart: EN 10051-2024

THICKNESS TOLERANCE

Thickness tolerance for low carbon steel grades suitable for cold forming.

Thickness (t) mm	Width (w) mm		
	$w \leq 1200$	$1200 < w \leq 1500$	$1500 < w \leq 1600$
$t \leq 2,00$	$\pm 0,13$	$\pm 0,14$	$\pm 0,16$
$2,00 < t \leq 2,50$	$\pm 0,14$	$\pm 0,16$	$\pm 0,17$
$2,50 < t \leq 3,00$	$\pm 0,15$	$\pm 0,17$	$\pm 0,18$
$3,00 < t \leq 4,00$	$\pm 0,17$	$\pm 0,18$	$\pm 0,20$
$4,00 < t \leq 5,00$	$\pm 0,18$	$\pm 0,20$	$\pm 0,21$

Thickness tolerance for steel grades with minimum yield strength $R_e \leq 300$ MPa (Category A)

Thickness (t) mm	Width (w) mm		
	$w \leq 1200$	$1200 < w \leq 1500$	$1500 < w \leq 1600$
$t \leq 2,00$	$\pm 0,17$	$\pm 0,19$	$\pm 0,21$
$2,00 < t \leq 2,50$	$\pm 0,18$	$\pm 0,21$	$\pm 0,23$
$2,50 < t \leq 3,00$	$\pm 0,20$	$\pm 0,22$	$\pm 0,24$
$3,00 < t \leq 4,00$	$\pm 0,22$	$\pm 0,24$	$\pm 0,26$
$4,00 < t \leq 5,00$	$\pm 0,24$	$\pm 0,26$	$\pm 0,28$

Hot Rolled Product Dimension Tolerances

Standart: EN 10051:2024

THICKNESS TOLERANCE

Thickness tolerance for steel grades with minimum yield strength $300 < R_e \leq 360$ MPa (Category B)

Thickness (t) mm	Width (w) mm		
	$w \leq 1200$	$1200 < w \leq 1500$	$1500 < w \leq 1600$
$t \leq 2,00$	$\pm 0,20$	$\pm 0,22$	$\pm 0,24$
$2,00 < t \leq 2,50$	$\pm 0,21$	$\pm 0,24$	$\pm 0,26$
$2,50 < t \leq 3,00$	$\pm 0,23$	$\pm 0,25$	$\pm 0,28$
$3,00 < t \leq 4,00$	$\pm 0,25$	$\pm 0,28$	$\pm 0,30$
$4,00 < t \leq 5,00$	$\pm 0,28$	$\pm 0,30$	$\pm 0,32$

Thickness tolerance for steel grades with minimum yield strength $360 < R_e \leq 420$ MPa (Category C)

Thickness (t) mm	Width (w) mm		
	$w \leq 1200$	$1200 < w \leq 1500$	$1500 < w \leq 1600$
$t \leq 2,00$	$\pm 0,22$	$\pm 0,25$	$\pm 0,27$
$2,00 < t \leq 2,50$	$\pm 0,23$	$\pm 0,27$	$\pm 0,30$
$2,50 < t \leq 3,00$	$\pm 0,26$	$\pm 0,29$	$\pm 0,31$
$3,00 < t \leq 4,00$	$\pm 0,29$	$\pm 0,31$	$\pm 0,34$
$4,00 < t \leq 5,00$	$\pm 0,31$	$\pm 0,34$	$\pm 0,36$

NOTE:

For products with cut edges, thickness measurement is performed min. from the edges. 25 mm min. from the edges for products with untrimmed edges inside. 40 mm from the inside and from any point.

Hot Rolled Product Dimension Tolerances

Standart: EN 10051:2024

LENGTH TOLERANCE

Length tolerance for steel grades suitable for cold forming.

Nominal Length (L) mm	Tolerance mm	
	Lower	Upper
L		
L < 2000	0	+ 10
2000 ≤ L < 8000	0	+ 0,005 x L
8000 ≤ L	0	+ 40

WIDTH TOLERANCE

Nominal Width (w) mm	Tolerance mm			
	Uncut Edges		Uncut Edges	
	Lower	Upper	Lower	Upper
w ≤ 1200	0	20	0	3
1200 < w ≤ 1600	0	20	0	5

SURFACE FLATNESS TOLERANCE

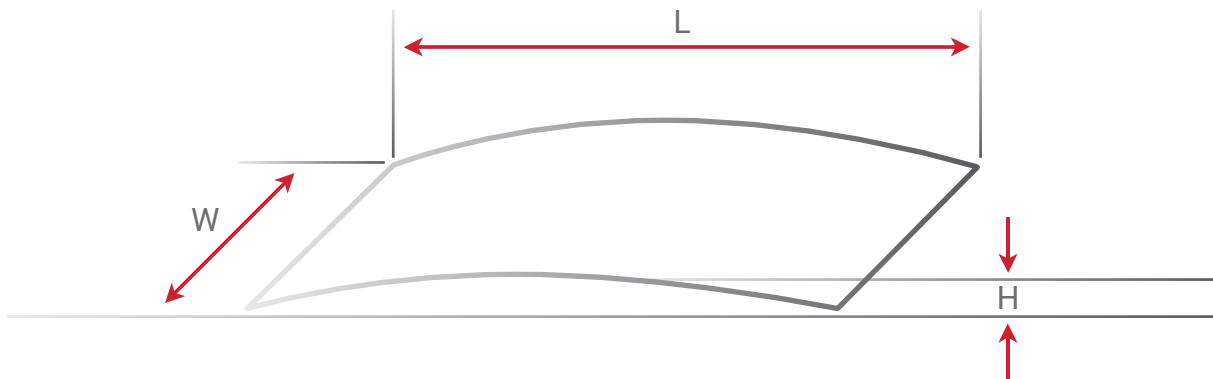
Tolerance for steel grades with minimum yield strength Re ≤ 300 MPa (Category A)

Nominal Thickness (t) mm	Nominal Width (w) mm	Tolerance	Special Tolerance (H)
t ≤ 2,00	w ≤ 1200	18	9
	1200 < w ≤ 1500	20	10
	w > 1500	25	13
2,00 < t ≤ 5,00	w ≤ 1200	15	8
	1200 < w ≤ 1500	18	9
	w > 1500	23	12

Hot Rolled and Pickled Product Dimension Tolerances

Tolerance for steel grades with minimum yield strength $300 < R_e < 900$ MPa
(Category B, C)

Nominal Thickness (t) mm	Nominal Width (w) mm	Category-based Tolerance	
		B	C
$t \leq 5,00$	$w \leq 1200$	18	23
	$1200 < w \leq 1500$	23	30
	$w > 1500$	28	38



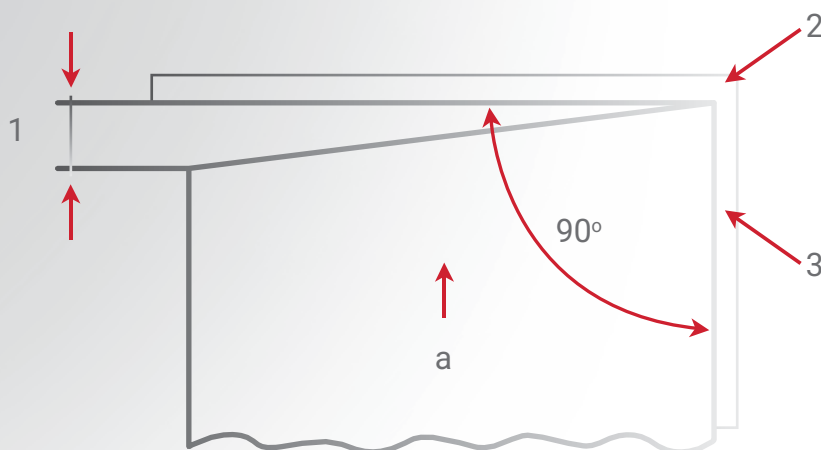
Note:

"Narrow surface flatness" tolerance values for B and C group grades are determined by negotiation at the order stage.

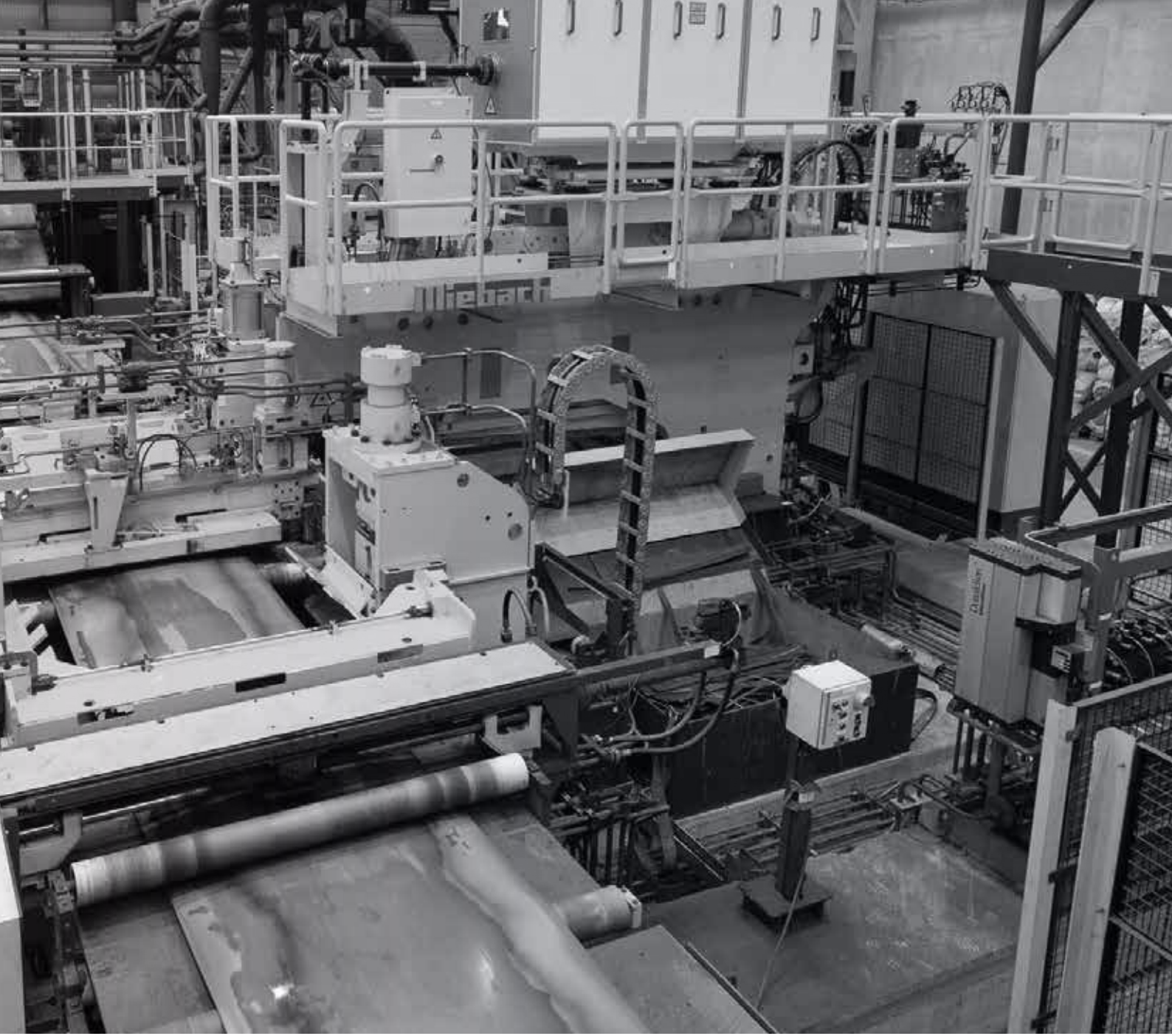
Hot Rolled and Pickled Product Dimension Tolerances

OUT OF SQUARENESS TOLERANCE

The out of squareness tolerance is a maximum of 1% of the actual width of the product. The out of squareness is the amount of deviation determined by the orthogonal projection of the transverse edge on the longitudinal edge.



- 1. Out of squareness
- 2. Square
- 3. Side edge
- a. Rolling direction



Our Laboratories (Accreditation)



Multiservice

YILDIZ DEMİR ÇELİK A.Ş. Laboratories provide services to both internal and external customers with their Chemistry, Mechanics, Paint, and Color Laboratories.



Registered

YILDIZ DEMİR ÇELİK A.Ş. Laboratories are accredited by TÜRKAK according to the TS EN ISO/IEC 17025 standard for tensile testing, zinc coating weight, and tests applied to painted sheets.



State of the art technology

Since 2018, our laboratories, with a focus on high customer satisfaction and providing accurate and reliable services, have been conducting control tests on all raw materials that directly affect product quality, as well as trials of alternative new raw materials and research activities. These tests are performed in accordance with standards using state-of-the-art equipment and experienced personnel.

Mechanical tests and metallographic tests are performed on our final products produced through pickling, cold rolling and galvanizing processes and intermediate products for process control purposes.



Long-Lasting Usage Guide



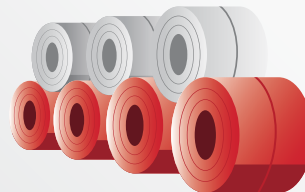
Guidelines

Transportation and Handling

Material transfers must be carried out using appropriate equipment (forklifts, C-hooks, electromagnets, etc.).

Lifting/transport equipment should have rubber, rubber, felt, or other suitable materials on the surfaces that contact the material to increase resistance to impacts.

Steel ropes that could potentially cause damage through internal wrapping should not be used.



Product Selection and Storage

Materials should be stored in closed and temperature-controlled environments to prevent moisture and condensation.

To avoid condensation, the temperature change in the environment should not be too high (maximum 5-10°C), and the relative humidity should not exceed 70%.

Materials should be stored on clean and smooth surfaces that will not cause defects like dents or impact marks.

Materials should not make direct contact with the ground; they should always be placed on saddles, pallets, or wedges.

There must be continuous air circulation in the storage area. To support air circulation, a space should be left between stacks or rolls.

FIFO (First In, First Out) method is recommended for storage practices.

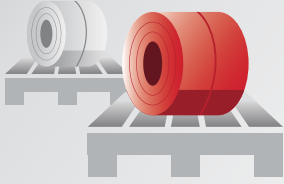
When determining the mechanical warranty periods of materials, the warranty periods specified in the relevant standard for the steel grade should be taken into account.

Cutting and Shaping

Use of Correct Equipment:

When cutting and shaping products, use special cutting tools that will not damage the coating.

Long-Lasting Usage Guide

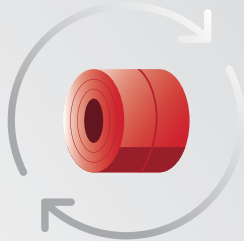


Packaging

During packaging, pallets, corner protectors, and wedges suitable for the product type should be used to protect materials from damage.

Maintenance and Cleaning

It is recommended that the packaging not be opened and the materials not be put into use until they reach room temperature.



Environmental Factors

Products with protective film coatings should be stored away from sunlight and should be used without prolonged waiting to prevent adhesive residues on the surface.

Products should not be stored outdoors.



CONCLUSION

To ensure the longevity and efficient use of your products, it is advised to follow the above recommendations.

Proper storage and usage will enhance the performance and durability of your products, helping you achieve maximum efficiency in your projects.

For any questions or further information, please contact

ydc.mt@yildizdemircelik.com.tr





STEEL IN EVERY STEP



<https://www.yildizdemircelik.com.tr/en/>

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Production Facilities

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İzmit/Kocaeli



YILDIZ DEMİR ÇELİK A.Ş. IS A SUBSIDIARY OF YILDIZLAR YATIRIM HOLDİNG