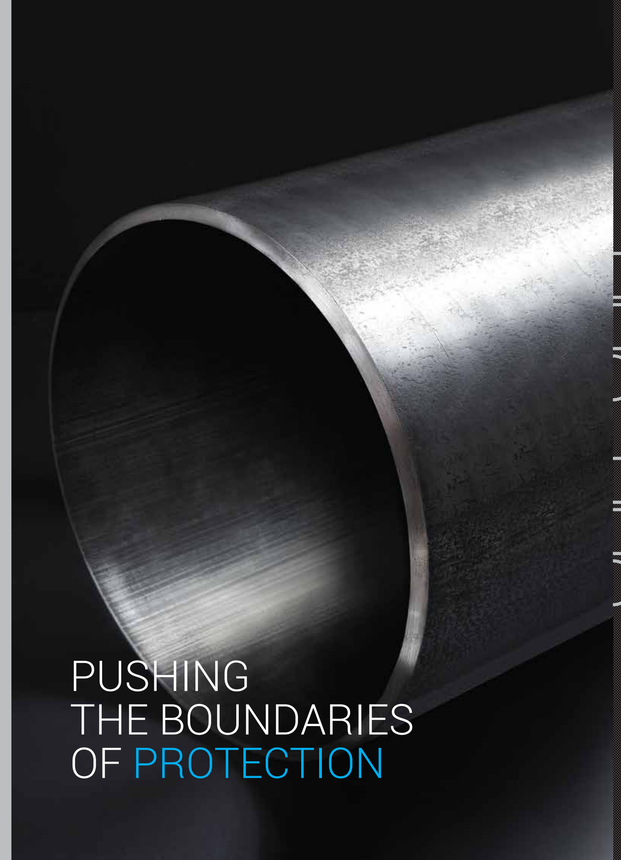

PUSHING
THE BOUNDARIES
OF PROTECTION

R+ Innovation

INTRODUCTION

Foulad Gostar Atena (FGA) Company was established in 2008 with the aim of manufacturing Hollow Structural Steel Sections (HSS) through Cold Forming and Electric Resistance Welding (ERW) method. In order to promote the quality level of different industries such as construction, Oil and Gas, Petrochemical, Water and Wastewater and many other industries, high quality HSS are produced in various sizes.
ATENA's factory is located in a 6-hectare area at ILAAM-IRAN with a production capacity of 150,000 tons per year.
We studied market demands and responded to current deficiencies by recruiting eminent and experienced technical consultants in this field with a hope to be one of the largest HSS manufacturers in Iran and the Region.

ATENA
STEEL MANUFACTURING

FOULAD GOSTAR ATENA (JSC)

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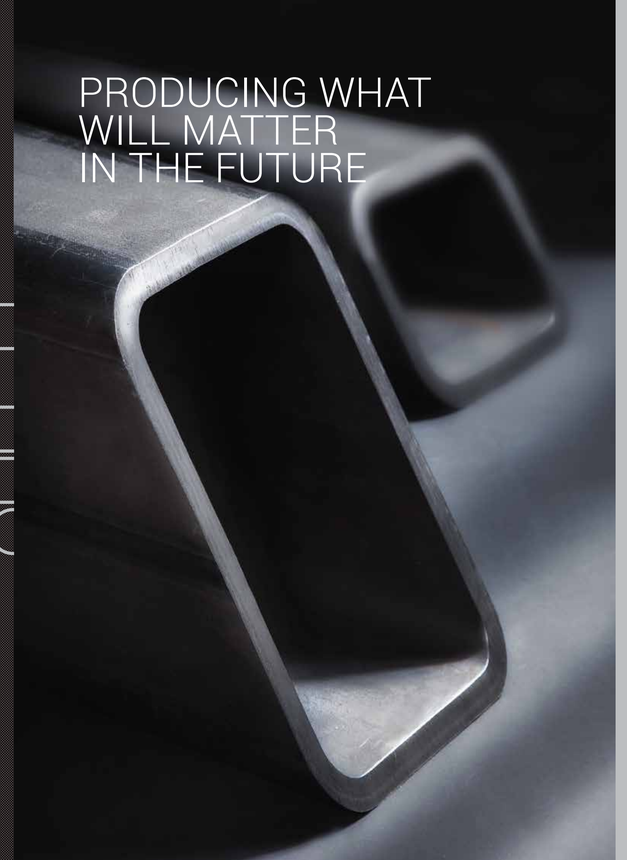
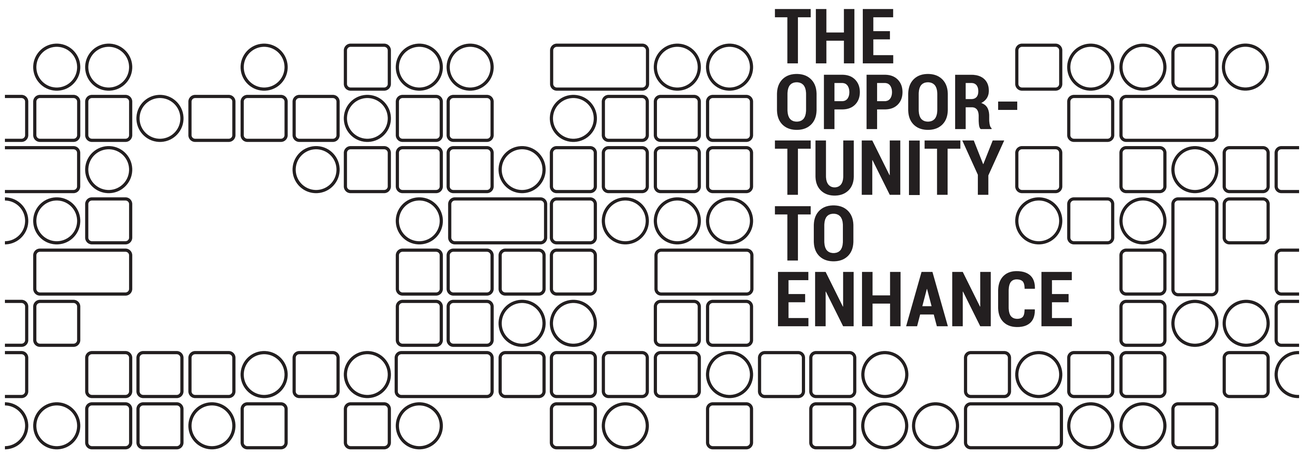
- Tel: +98 2188652048-9 +98 2186083792 +98 2186081679 Fax. +98 2188652047 +98 2186084357
- Engineering Office: No.1402, Level 14, Park Center Building, 7th Narenjestan St, Lavasani Boulevard, Tehran, Iran. Tel: 021 40229880-1
- Factory: F.G.A Factory, Shabab Industrial Estate, Sarabieh City, Ilam province, Iran.

www.gfatena.com

PRODUCING WHAT
WILL MATTER
IN THE FUTURE




THE
OPPOR-
TUNITY
TO
ENHANCE

STATE-OF-THE-ART TECHNOLOGY

- Using the most progressive mill line machinery manufactured by the most renown international companies such as KUSAKABE (Japan), SIEMENS (Germany), and EFD (Norway)
- HSS manufacturing through cold forming method and Electric Resistance Welding (ERW)
- Using the modern high frequency welding machine made by EFD
- Cutting & Machining simultaneously by an advanced shearing machine called Milling Cutoff
- The capability of producing HSS with the thickness of up to 18mm
- The Production speed of 30 meters per minute
- Achieving international standards including ASTM, EN, DIN, JIS, ...

QUALITY AND SPEED IN PRODUCTION

- Compliance with AWWA standard for producing water supply pipes
- Obtaining the certificate of the Iranian Housing and Urban Development Research Center
- The fully approved products by the well-known standards Thanks to the combination of high speed production and the outstanding quality of mill line machines

American Water Works Association · British Standards · DIN · ASTM International · JIS

ENVIRONMENT-FRIENDLY INDUSTRY

- The least environmental pollution due to our commitment not to use fossil fuels or any kind of industrial wastewater

HSS AND APPLICATIONS

HSS stands for Hollow Structural Section that is a metal profile with a hollow cross section. Round, square and rectangular shapes of HSS profiles have many applications in various industries.

HSS profiles are being manufactured in 2 methods:

- Traditional production method
(welding and cutting by manpower)
- Modern industrial production method
(by fully automated and integrated machinery)

Traditional production has the following shortcomings:

- High percentage of workforce errors and thus less reliability
- Increased production time
- Increased required workforce
- Increased Production expense
- Considerable residual stress in welding zone

Modern industrial production method doesn't have the above shortcomings.

WHY HSS?

HSS has many various applications in different industries such as Construction, Oil and Gas, Municipal Engineering and many other industries.

Steel Advantages vs. Other Construction Materials

- Steel construction is naturally faster than concrete or masonry
- Due to its strength, structures built using steel are usually lighter than those made of other materials
- Steel is fully recyclable
- Due to its strength, construction using structural steel generally provides more room for open spaces, which is desirable in terms of architecture and aesthetics
- Due to higher strength, steel is known to provide the best strength-to-weight ratio compared to other construction material such as concrete or timber

HSS (produced by modern manufacturing) advantages vs. other structural steel sections

- Better strength-to-weight ratio
- Stronger in torsion
- Best for columns due to symmetry and material placement
- Better welding quality
- Useful in lightweight construction and better performance against earthquake forces
- Useful in space structures
- Better looking architectural exposure
- Decreased construction costs and being more economical
- Made to measure profile lengths
- Much easier composite construction by using concrete-filled members

Comparing HSS with the Other Structures Economically

The following table indicates why using HSS, leads to time saving, higher quality and lower costs.

	Comparing with Built-up Steel Structures	Comparing with Concrete Structures
Time	Decreasing the period of Fabrication and Installation of Steel Frame up to %40	Decreasing the period of Concrete Structure Construction up to %70
Weight	Limited Reduction in Dimension and Thickness of Columns	Reduces the Dimension of Columns up to %30
Cost	Leads to Cheaper Columns up to %20 and Cheaper Steel Frame up to %10	More economical due to remarkable decrease of construction time in Concrete Structures and Faster Return on Investment
Quality	1. Much higher quality due to Controlled Electric Resistance Welding (ERW) Instead of Submerged Arc Welding (SAW) 2. Much higher quality due to Residual Stress Reduction (Welding Line)	Much higher quality due to elimination of numerous Human mistakes and environmental Factors affecting on the construction quality

These comparisons are made in a 5 storey building with relative irregular plan and 2.5 up to 7.5 meter span (Including steel moment frame in X-direction and concentric brace (CBF) in Y-direction). Although the above-mentioned percentages may vary in different structures, it is expected that the advantages of HSS utilization are remarkable in all kinds of structures.

PRODUCTS (SPECIFICATIONS AND STANDARDS)

ATENA manufactures HSS using non-alloyed carbon steel which are either mild (ST-37), (ST- 44) or high strength (ST- 52), in round, Square and Rectangular shape through cold forming and Electric Resistance Welding (ERW) method.
These sections are made of hot rolled coils with yield strength ranging from 240 to 360 mpa, and ultimate tensile strengths ranging from 370 to 520 mpa. This corresponds to an ultimate elongation of about 15-17 percent.
After cold-working process, yield strength and ultimate strength increases which is one of the advantages of the production method and arises from strain hardening in stress-strain curve.

TABLE OF PRODUCTS:

Square Tube

125 × 125 ~ 320 × 320 mm , Thickness: 4.5 ~ 18 mm

Thickness (mm)		4.5	5	6	8	10	12	15	18
Outside Dimension (mm)	125×125	(16.7)	(18.4)	(21.8)	(28.4)	(34.5)	(40.4)		
	140×140	(18.8)	(20.7)	(24.6)	(32.1)	(39.2)	(46.0)		
	160×160	(21.9)	(24.4)	(29.2)	(39.0)	(48.7)	(58.4)		
	180×180	(24.8)	(27.5)	(33.0)	(44.0)	(55.0)	(66.0)		
	200×200		(30.2)	(36.2)	(48.3)	(60.4)	(72.5)	(90.6)	
	220×220		(33.2)	(39.6)	(52.1)	(64.2)	(76.0)	(92.9)	
	250×250			(45.2)	(59.6)	(73.5)	(87.2)	(107.0)	
	280×280			(50.8)	(67.0)	(82.9)	(98.4)	(121.0)	
	300×300			(54.7)	(72.9)	(91.1)	(109.3)	(136.6)	(164.0)
	320×320			(58.3)	(77.0)	(95.4)	(113.4)	(139.7)	(165.3)

Mass (kg/m)

Rectangular Tube

200 × 120 ~ 400 × 200 mm , Thickness: 4.5 ~ 18 mm

Thickness (mm)		4.5	5	6	8	10	12	15	18
Outside Dimension (mm)	200×120	(21.9)	(24.4)	(29.2)	(39.0)	(48.7)	(58.4)		
	200×150	(24.8)	(27.5)	(33.0)	(44.0)	(55.0)	(66.0)		
	250×150		(30.2)	(36.2)	(48.3)	(60.4)	(72.5)	(90.6)	
	260×180		(33.2)	(39.6)	(52.1)	(64.2)	(76.0)	(92.9)	
	300×100		(30.2)	(36.2)	(48.3)	(60.4)	(72.5)	(90.6)	
	300×200			(45.2)	(59.6)	(73.5)	(87.2)	(107.0)	
	350×250			(54.7)	(72.9)	(91.1)	(109.3)	(136.6)	(164.0)
	400×200			(54.7)	(72.9)	(91.1)	(109.3)	(136.6)	(164.0)

Mass (kg/m)

LIFE IS PRECIOUS, MAKE IT SAFER

MAKING THE WAYS FOR THE ADVANCEMENT

Round Tube

6 inch ~ 16 inch , Thickness: 4.5 ~ 18 mm

Thickness (mm)		4.5	5	6	8	10	12	15	18
Outside Dimension (mm)	168.3	(18.1)	(20.0)	(23.9)	(31.4)	(38.8)	(46.0)		
	193.7	(21.9)	(24.4)	(29.2)	(39.0)	(48.7)	(58.4)		
	219.1	(24.8)	(27.5)	(33.0)	(44.0)	(55.0)	(66.0)		
	244.5		(30.2)	(36.2)	(48.3)	(60.4)	(72.5)	(90.6)	
	273		(32.8)	(39.3)	(52.0)	(64.5)	(76.8)	(94.8)	
	323.9			(46.7)	(61.9)	(76.9)	(91.7)	(113.5)	
	355.6			(51.4)	(68.1)	(84.7)	(101.0)	(125.2)	
	381			(54.7)	(72.9)	(91.1)	(109.3)	(136.6)	(164.0)
	406.4			(58.9)	(78.1)	(97.1)	(116.0)	(143.9)	(171.3)

Mass (kg/m)

Pipe (For Water Supply)

6 inch ~ 16 inch , Thickness: 4.5 ~ 8 mm

Thickness (mm)		4.5	5	6	8
Outside Dimension (mm)	168.3	(18.1)	(20.0)	(23.9)	
	193.7	(21.9)	(24.4)	(29.2)	
	219.1	(24.8)	(27.5)	(33.0)	
	244.5		(30.2)	(36.2)	
	273		(32.8)	(39.3)	
	323.9		(39.1)	(46.7)	
	355.6		(43.0)	(51.4)	(68.1)
	381		(45.5)	(54.7)	(72.9)
	406.4		(49.2)	(58.9)	(78.1)

Mass (kg/m)