Future-driven solutions

www.7thd.net

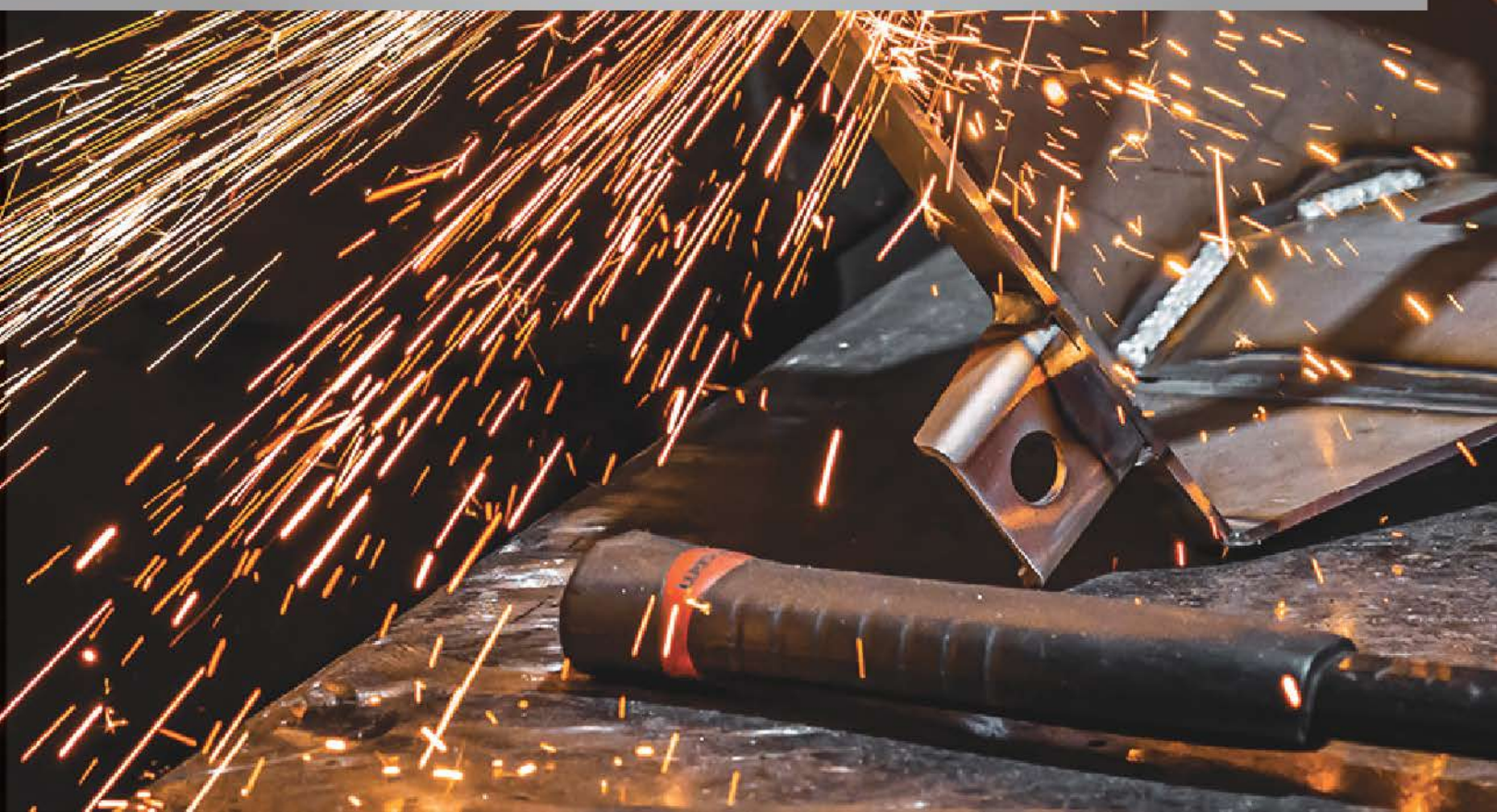


Table of Contents

About Us

7D Factory for Metal Products is proudly located in Saudi Arabia, at the heart of a rapidly growing industrial and economic hub. Our strategic location allows us to serve both local and international markets with ease, contributing to the Kingdom's vision for industrial innovation and sustainability.

From our state-of-the-art facility in Eastern Province of the Kingdom of Saudi Arabia, we design and manufacture premium-quality metal products tailored to meet the needs of diverse industries. As a company rooted in Saudi Arabia, we are committed to supporting the Kingdom's economic growth and aligning with Vision 2030, driving sustainable solutions and future-ready innovations.

رؤيـــة VISION
2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Vision

To revolutionize the metal products industry by becoming a global leader known for excellence, innovation, and sustainability. At 7D Factory, we aim to set new standards in quality and creativity, delivering future-driven solutions that empower businesses, enhance infrastructure, and inspire progress across industries worldwide. Our vision is to continuously evolve, embracing advanced technologies and eco-friendly practices to create a better tomorrow for our customers, partners, and communities.

Mission

At 7D Factory, our mission is to:

1-Provide Innovative Metal Solutions:-

Develop and manufacture a wide range of reliable, high-quality metal products tailored to meet the specific needs of various industries.

2-Drive Sustainability:-

Adopt environmentally responsible practices by utilizing sustainable materials, energy-efficient processes, and waste reduction strategies.

3-Empower Our Customers:-

Deliver future-oriented, customizable solutions that enable our clients to achieve their goals and succeed in their industries.

4-Lead Through Technology:-

Embrace cutting-edge technologies, automation, and advanced manufacturing techniques to ensure precision, efficiency, and scalability in our production processes.

5-Foster Excellence:-

Nurture a culture of innovation, collaboration, and continuous improvement within our team, ensuring that we stay ahead of industry trends and lead with excellence.

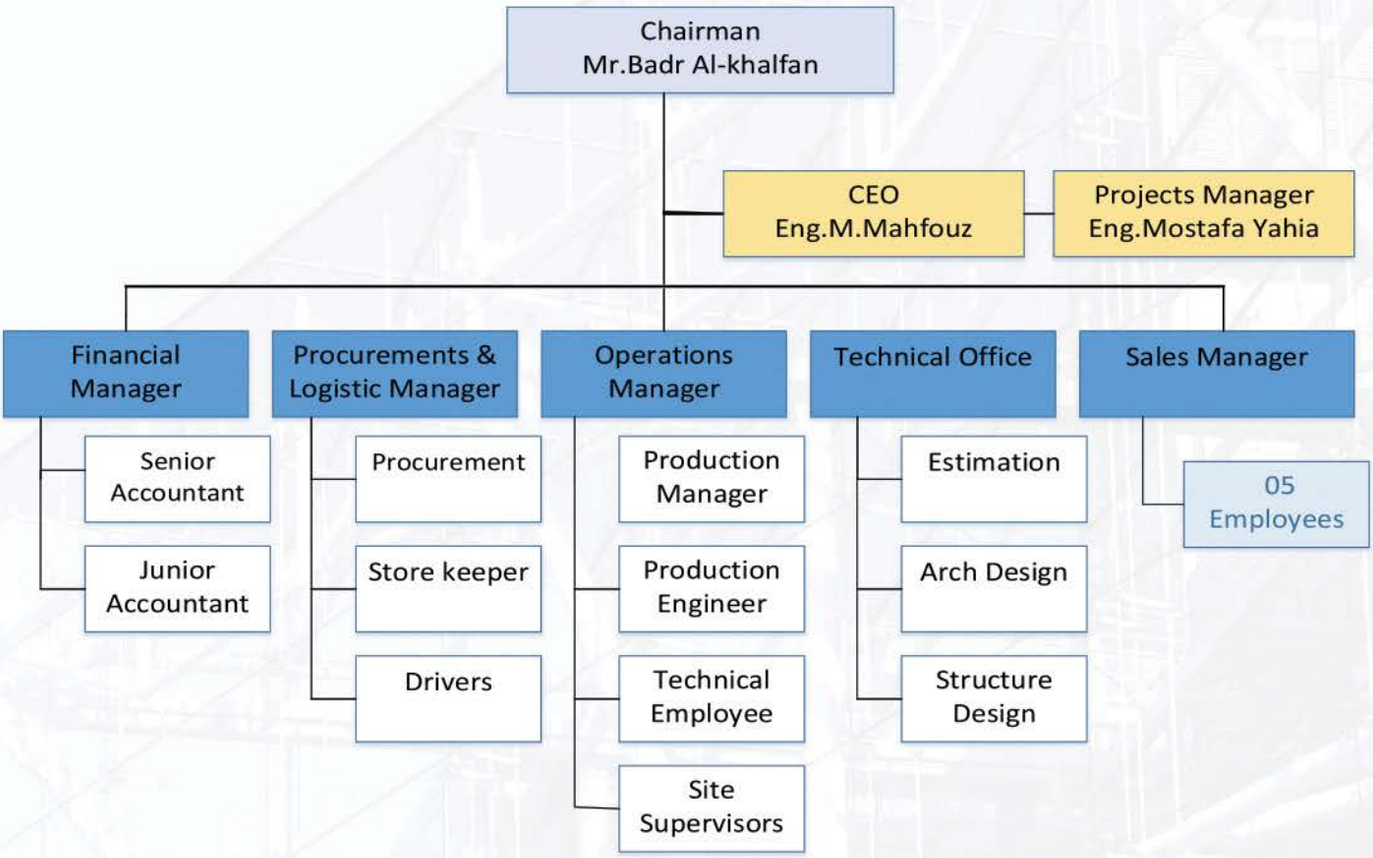
6-Build Long-Term Partnerships:-

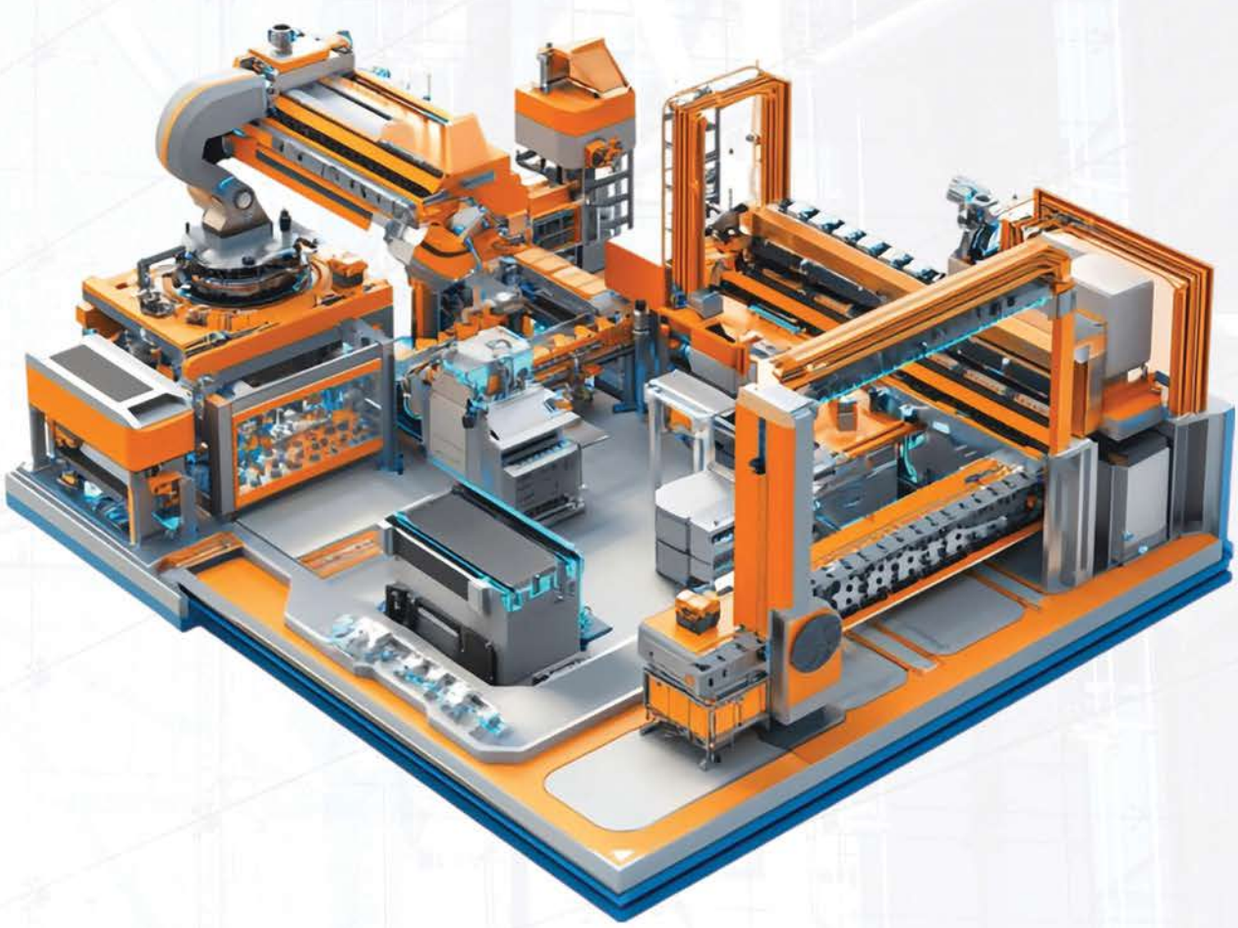
Strengthen relationships with clients, suppliers, and stakeholders by providing exceptional service, dependable solutions, and trustworthiness.

7-Contribute to Economic Growth:-

Support industrial development and infrastructure advancement by delivering future-ready solutions that meet evolving market demands

Organizational Chart





Official Documents

وزارة التجـارة
Ministry of Commerce

رؤيـة 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

مصنع البعد السابع للصناعة

السجل التجاري: 2051261709

MCgovSA
www.mc.gov.sa

رمزك التجاري QR Code

من خلاله يمكنك التحقق المباشر من العلومات:

- السجل التجاري
- رخصة البلدية
- شهادة السعودة
- برنامج نطاقات
- شهادة الزكاة
- الغرفة التجارية

وزارة التجـارة
Ministry of Commerce

شهادة تسجيل فرع مؤسسة فردية
Branch Of Individual Establishment Registration Certificate

الرقم الموحد: ٧٠٤٣٠٠٥٤٣٣
رقم المنشأة: ٢٠٥١٢٦١٧٠٩
التاريـــــخ: ١٤٤٦/٠٦/١٦ هـ

إسم التاجر: **بدر عبدالله عيد الخلفان** الجنسية: **سـعودى** تاريخ الميلاد: **١٣٩٣ هـ**

رقم السجل المدني/ بطاقة الاحوال: **١٠١٢٩٣٤٣٨٤** تاريخه: **١٤١٠/٠٥/١٢ هـ** مصدره: **الخبر**

مركزها الرئيسي: **الثقبة**

هاتف: الرمز البريدي: ص. ب:

رقم سجل المركز الرئيسي: **٢٠٦٠٠٣٢٢١٣**

الإسم التجاري للفرع: **مصنع البعد السابع للصناعة**

العنوان: **٧٠٣٧، الايمان، ٣٢٦٣**

هاتف: الرمز البريدي: **٣٤٦٣٢** ص. ب:

النشاط: **للاطلاع على بيانات الأنشطة الرجاء مسح الرمز التجاري**

رأس المال: **١٠٠٠٠** **عشرة ألاف ريال فقط لا غير**

إسم المدير أو الوكيل المفوض: **بدر بن عبدالله بن عيد الخلفان**

الجنسية: **سـعودى** تاريخ الميلاد: **١٣٩٣ هـ**

رقم السجل المدني - الإقامة: **١٠١٢٩٣٤٣٨٤** تاريخه: مصدره:

سلطات المدير:

يشهد مكتب السجل التجاري بمدينة: **الخبر** بأنه تم تسجيل فرع المؤسسة المذكورة أعلاه بمدينة: **الخبر**

وتنتهي صلاحية الشهادات في: **١٤٤٧/٠٦/٢٦ هـ** بموجب الإيصال رقم: **٢٤١٢٢٤٠١٣٨٦١** وتاريخ: **١٤٤٦/٠٦/١٦ هـ**

Official Documents

Proof Number	1059503315	رقم الإثبات
Original Date	23/12/2024	تاريخ الإصدار
Expiration Date	21/6/2025	تاريخ الانتهاء

العنـوان الـوطني
NATIONAL ADDRESS

إثبات عنوان

Address Proof

بيانات صاحب العنوان

Address Holder Details

Name	مصنع البعد السابع للصناعة	الاسم
Customer Acc.	3 1 3 3 1 1 8 8 2 0 3	رقم الحساب
Reg. Date	17/12/2024	تاريخ التسجيـل

تفاصيل العنوان

Address Details

Short Address	E E G A 7 0 3 7	العنوان المختصر
Building No.	7 0 3 7	رقم المبنى
Street	Aleman	الشارع الايمان
Secondary No.	3 2 6 3	الرقم الفرعي
District	At Taawun Dist.	الحي حي التعاون
Postal Code	3 4 6 3 2	الرمزي البريدي
City	AL KHOBAR	المدينة الخبر
	Kingdom of Saudi Arabia	المملكة العربية السعودية

To Verify للتحقق

https://proof.address.gov.sa/VerifyProofNA.aspx

تم إصدار هذا الإثبات إلكترونيا ولا يتطلب التوقيع عليه

تم إصدار هذا الإثبات بناء على طلب الموضح أعلاه، ويحظر قطعيا تقليده أو إدخال أي تعديلات عليه سواء بالإضافة أو الحذف، ويعد الإثبات لاغيا إذا شابه شيء من ذلك. كما يعرض صاحبه للمساءلة القانونية.

This proof has been issued electronically and does not require a signature

This proof has been issued upon the request of the above-named, and it is absolutely prohibited to imitate it or make any modi fications to it, whether by addition or deletion, and the proof is considered void if it is marred by something, and its owner is subject to legal accountability.

Official Documents

شهادة المديونيات

رقم الشهادة	تاريخ الإصدار	تاريخ انتهاء الصلاحية
132969-22755751	23/01/2025	23/02/2025

حالة الشهادة	تم التحقق
اسم المنشأة	**مصنع البعد السابع للصناعة**
رقم المنشأة	**15-4019042**
رقم السجل التجاري	**2051261709**
الرقم الوطني الموحد	**7043005433**

تفاصيل المخالفات

إجمالي عدد المخالفات	إجمالي قيمة المخالفات
0	0 ريال

القضايا النشطة للتسوية الودية

إجمالي قيمة المخالفات
0

مديونيات رخص العمل

مديونيات رخص العمل تشمل فقط المديونيات التي يتم انشائها في حال انتقال الموظف الى منشاة اخرى وكان عليه متأخرات في رخص العمل.

إجمالي عدد الموظفين	إجمالي قيمة المخالفات
0	0 ريال

تشهد وزارة الموارد البشرية والتنمية الاجتماعية بأن المنشأة المذكورة أعلاه حققت نسبة التوطين المطلوبة منها وتم منحها هذه الشهادة حسب الطلب

الشهادة تم إنشاؤها إلكترونياً ومعتمدة من الجهة المختصة ولا تحتاج الى ختم او توقيع

The Ministry of Human Resources and Social Development certifies that this is the debt statement for the establishment and this certificate is granted as requested.

The certificate is electronically generated and approved by the authority. It does not require any signature or stamp.

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Official Documents

QIWA قوى

المـوارد البشرية والتنمية الاجتماعية

شهادة التوطين

رقم الشهادة	تاريخ الإصدار	تاريخ انتهاء الصلاحية
226852-65420367	23/01/2025	23/04/2025

تاريخ التجديد/التحديث	—
حالة الشهادة	تم التحقق
اسم المنشأة	مصنع البعد السابع للصناعة
رقم المنشأة	15-4019042
رقم السجل التجاري	2051261709
الرقم الوطني الموحد	7043005433
مستوى نطاقات	اخضر متوسط
معدل التوطين	% 25

تشهد وزارة الموارد البشرية والتنمية الاجتماعية بأن المنشأة المذكورة أعلاه حققت نسبة التوطين المطلوبة وتم منحها هذه الشهادة بناء عن طلبها.

الشهادة تم إنشاؤها إلكترونياً ومعتمدة من الجهة المختصة ولا تحتاج الى ختم او توقيع

The Ministry of Human Resources and Social Development certifies that the above mentioned Establishment has achieved the required Nationalization rate and has been granted this certificate upon request.

The certificate is electronically generated and approved by the authority. It does not require any signature or stamp.

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Official Documents

QIWA قوى

المـوارد البشرية والتنمية الاجتماعية

شهادة الإلتزام بحماية الأجور

رقم الشهادة	تاريخ الإصدار	تاريخ انتهاء الصلاحية
920571-21422032	23/01/2025	23/02/2025

حالة الشهادة	تم التحقق
اسم المنشأة	**مصنع البعد السابع للصناعة**
رقم المنشأة	**15-4019042**
رقم السجل التجاري	**2051261709**
الرقم الوطني الموحد	**7043005433**

تشهد وزارة الموارد البشرية والتنمية الاجتماعية بأن المنشأة المذكورة أعلاه حققت نسبة الإلتزام بحماية الأجور المطلوبة وتم منحها هذه الشهادة بناء عن طلبها.

الشهادة تم إنشاؤها إلكترونياً ومعتمدة من الجهة المختصة ولا تحتاج الى ختم او توقيع

يرجى الملاحظة أن هذه الشهادة لا تعفي عدم تطبيق نظام الملاحظات على هذه المنشأة

The Ministry of Human Resources and Social Development certifies that the above mentioned Establishment has achieved the required Wage Protection rate and has been granted this certificate upon request.

The certificate is electronically generated and approved by the authority. It does not require any signature or stamp.

Please note, this certificate does not guarantee that no Notes will not be applied to this establishment.

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Official Documents

[redacted]

TIN	3101786077	الرقم المميز
Certificate No.	100241125940449	رقم الشهادة
Certificate date	13/02/2018	تاريخ الشهادة

هيئة الزكاة والضريبة والجمارك
Zakat, Tax and Customs Authority

المملكة العربية السعودية
Kingdom of Saudi Arabia

شهادة تسجيل في ضريبة القيمة المضافة

VAT Registration Certificate

تشهد هيئة الزكاة والضريبة والجمارك بأن المكلف أدناه مسجل في ضريبة القيمة المضافة بتاريخ 2018/02/13م

The Zakat, Tax and Customs Authority certifies that the taxpayer below is VAT registered on 13/02/2018 AD

Taxpayer Name	مؤسسة مرسى المدينه للمقاولات العامة	اسم المكلف
VAT Registration Number	310178607700003	رقم التسجيل الضريبي
Effective Registration Date	2018/03/01	تاريخ نفاذ التسجيل
Taxpayer Address	الخبر ،الثقبة ،صناعية بغلف ،31952	عنوان المكلف
CR / License/ Contract / ID No.	2060032213	رقم السجل التجاري / الرخصة / العقد /الهوية
Tax Period	ربع سنوي-Quarterly	الفترة الضريبية
First Filing due date	2018/04/30	تاريخ استحقاق أول إقرار ضريبي

ملاحظة: كمكلفين مسجلين في ضريبة القيمة المضافة, لا يجوز لكم تحصيل ضريبة القيمة المضافة من عملائكم قبل تاريخ نفاذ التسجيل في الضريبة. و في حال تبين غير ذلك ستقوم هيئة الزكاة والضريبة و الجمارك بتنفيذ الغرامات المستحقة

Note: As a VAT registered taxpayer, you are not allowed to collect VAT from your customers prior to the effective date of the tax registration. If otherwise approved, The ZAKAT,Tax and Customs Authority will impose the applicable penalties.

ضريبة القيمة المضافة VAT

zatca.gov.sa 19993 @zatca_sa

[redacted]

هذه الوثيقة مستخرجة من النظام الآلي ولا تحتاج إلى توقيع و لا يعتد بهذه الشهادة إلا بعد التحقق من موقع الهيئة www.zatca.gov.sa

Official Documents

مذكرة تفاهم

بين

مصنع مرسي المدينة للصناعة

و

مصنع البعد السابع

من أجل تحقيق تعاون مثمر بين مصنع مرسي المدينة للصناعة و مصنع البعد السابع في مجالات التصنيع للمشغولات الحديدية والالومنيوم والزجاج فقد اتفق الجانبان. بتاريخ 1/07/ 1446 هـ الموافق 2025/01/01 م علي توقيع المذكرة بين كلا من :

1. مصنع مرسي المدينة للصناعة وعنوانه 6856 ، السعادة – حي التعاون 2652 ويمثله في التوقيع السيد / بدر عبد الله عيد الخلفان ، ويشار اليه فيما بعد "الطرف الأول" .

1. مصنع البعد السابع وعنوانه 7073 ، الايمان 3263 ، الخبر ويمثله في التوقيع السيد/ محمد محفوظ علي احمد ، ويشار اليه فيما بعد "الطرف الثاني " .

تمهيد:

حيث أن الطرف الأول مصنع مرسي المدينة يعمل في مجالات الالومنيوم والزجاج والحديد ولديه من الخبرات والايدي العاملة الماهرة لتنفيذ الاعمال بدقة ومهارة وفقا لاصول الصناعة ، وحيث أن الطرف الثاني مصنع البعد السابع لديه كوادر فنية متخصصة واشراف هندسي متميز وماكينات ذات طابع خاص بتكنولوجيا متقدمة في مجالات التصنيع . وحيث يرغب الطرفان في تحديد إطار التفاهم حول هذا الموضوع، فقد تم التفاهم بين الطرفين على ما يلي:

المادة الأولى: يعتبر التمهيد السابق جزءاً لا يتجزأ من هذه المذكرة.

مصنع البعد السابع للصناعة
س ت : ٢٠٥١٢٦١٧٠٧
CR:2051261707
المملكة العربية السعودية

مصنع مرسي المدينة للصناعة
س.ت ٢٠٦٠٤١٤٦٧
C.R. 2060041467
MARSA AL MADINA INDUSTRIAL FACTORY

Approvals

www.7thd.net

Company Approvals Certification

NATIONAL PIPE COMPANY LTD.
C.R No. 2051003936, P.O. BOX 1099
AL-KHOBAR 31952, KINGDOM OF SAUDI ARABIA
Tel.: 013 882 5266, Fax : 013 882 5435

Purchase Order No.: 15001114 OP
Date : 07/07/15
NPC OR : 00013075 OR
Page 1 of 1

To Messrs : 684767

Al Madina Contracting Port Est
Bayoniah, 4Th Street,
Al Khobar
Saudi Arabia

ATTN : MR. JOSHY

Place of Delivery : Supply & Installa at HPM Exp. Plant
Date of Delivery : ASAP
Payment Terms : Credit
Others : Quote# 17 Jun 2015

Branch Plant : 95100 Administration

Currency : Saudi Riyals

S/L No	Particulars	Work #	Unit	Quantity	Unit Rate	Amount
1	Fabrication of Booth (Cubicle) , in HPM Expansion Plant , Size: 220cmHx12cmWx 250cmL ,	950490	UN	2.00	[redacted]	
TOTAL	SAR [redacted]					[redacted]

Buyer SALEEM

Purchasing Manager

Date 07/07/15

ADM / 6000 / 9.2 Rev. 02 (May 2009)
Distribution : VENDOR (White) / COMMERCIAL (Pink) / ACCOUNTING (Blue) / REQUESTING SECTION (Yellow)

تلفون : ٨٦٥٢٠٠٦ - فاكس : ٨٦٥٥٦٦٩ - الخبر - البايونية - الشارع الرابع - ص.ب ٣٠٢٠٦ - الخبر ٣١٩٥٢ - المملكة العربية السعودية
Tel.: 8652006 - Fax : 865 5669 - Al Khobar - Bayoniah - 4th St. P. O. Box 30206 Al- Khobar 31952 Saudi Arabia

Company Approvals Certification

AlSuwaiket
Interior Division

شـركـة مبـارك عبـدالله السـويكـت وأولاده للمقـاولات
MUBARAK ABDULLAH AL SUWAIKET SONS CONT. CO.

PURCHASE ORDER

P.O. No. 1554/15 **Date: 30th Aug, 2015**

M/s. Al Madina Contracting Port Est.
Al Khobar, KSA

Kind Attn: Mr. Joshy Sebastian

Sub: Supply & Installation of Glass for Malabar Gold @ Batha, Riyadh

With the reference to the above mentioned quotation, we are pleased to place the order for the followings:

No.	Description	Qty	Unit	Rate	Total(SR)
01	Supply and Installation of 6mm thickness Golden Painted Temper 45 Degree polish signage holes and cut out glass fixing at Malabar Gold Showroom, Riaydh	SQM	46	[redacted]	
02	Supply and Installation of 6mm thickness Silver Mirror with four side polish	SQM	16	[redacted]	
03	Supply and Installation of 12mm thickness Jumbo fix Glass at Riyadh	SQM	20	[redacted]	
	TOTAL				[redacted]
[redacted]					

Payment : 50% Advance payment.
50% after completion of the work.

Thanking you,

Mohd Ruknudheen
Procurement Head

Kaladharan A
Accounts Dept.

Sarfras Mahamood
Division Head

Company Approvals Certification

Advanced Lines Group for General Contracting
C.R. 2059003151

مجموعة الخطوط المتقدمة للمقاولات العامة
س.ت ٢٠٥٩٠٠٣١٥١

Purchase Order

Vendor details:
IKVTA Score: 0.0
CR #: 7012794611
Marsaa Al Madinah General Contracting Est.
Al Khobar 31952
Saudi Arabia
013 865 1666
Tax ID : 310178607700003

PO Number	PO-132229
PO Date	04/21/2022
PR Reference	PR-112557
Your Reference	EMail DT : 21APR2022
Mode Of Shipment	Land Freight
Incoterm	EX WORKS
Payment terms	100% Advance Payment
PO Issued By	Mohib Sidiqui

Shipping address:
Advanced Lines Yard
King Khaled St. Cross 19,
King Khaled Business Center
P.O Box 4472
Al Khobar 31952
Saudi Arabia
013 8962325, 013 8672327 (FAX)

Sl No	Brand	Description	Taxes	Date Req.	Qty	UOM	Unit Price	Amount
1		Tempered Glass Double Layered 1000 x 600 MM (6MM Thickness x 8MM Air Space)	P Vat 15%	04/19/2022	1.00	Each	[redacted]	
2		Tempered Glass Double Layered 800 x 1600 MM (6MM Thickness x 8MM Air Space)	P Vat 15%	04/19/2022	1.00	Each	[redacted]	

Subtotal	[redacted]
Taxes	[redacted]
Total	[redacted]

Amount in words :
Three Hundred And Sixty-Seven Riyal and Fifty-Four Halala

INTERNAL REFERENCE:
Project Ref.: PRJ0048
CS No.: Single Source

TERMS & CONDITIONS:
01. Payment Terms: 100% Advance Payment
02. Delivery Terms: Ex Works
03. All Technical Details as per submitted proposal
04. Warranty details (If Any) to be enclosed along with the Delivery Note
05. PO to be acknowledged within 2 Working days or will be considered accepted
06. MTC / Any Document (If Any) to be handed before collection.
07. If the materials are rejected by ALG QHSE, supplier agrees to replace or return and ALG shall not be liable for any Loss arising from circumstances.
08.Vendor must supply the materials same as per the brand & Spec mentioned in the
09. All the Invoice should be as per Gazt Rule.
10. All the the description on the invoice should be in English & Arabic (Arabic is Must).

CONTACT DETAILS:
Requestor: Mr. Pavan
Warehouse Contact Person: Mr. Latchaprabhu | Contact No.: 966 (0) 53 2278240 | E-mail: store@advanced-lines.com

21/Apr/2022

Company Approvals Certification

شركة ميراج العربية للأدوات الدعائية
Miraj Arabia Co. for Advertising Materials

VAT Reg. No: 310487943800003
Local / Foreign
P.O. No.

Purchase Order

Date: 21.12.2020

Suggested Supplier, Name & Address

Marsa Almadina Contracting Port Est.
Al-Khobar Toqbah, PO BOX 30206,
Kingdom of Saudi Arabia
Tel: 0138651666

Place of Delivery	Date of Delivery	Quotation Request Ref.

Item No.	Item Details	Unit	Quantity Requested	Estimated Value	
				Unit Price	Amount
	Supply and Installation of Glass Box with U V glue		9	[redacted]	
	Total				[redacted]
	VAT 15%				[redacted]
	Thirteen Thousand Four Hundred Fifty Five Only			Total	[redacted]

Prepared by : Balaji
Signature : Balaji
Date : 21/12/2020

Approved by :
Signature :
Date :

مؤسسة ميراج العربية للأدوات الدعائية
mirajmedia.com
المملكة العربية السعودية

c.r. 2051041779, po: 2621, al khobar 34632, kingdom of saudi arabia. tel: +966 13 887 2603, fax: +966 13 887 2650
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Company Approvals Certification

AlSuwaiket

شركة مبارك عبدالله السويكت وأولاده للمقاولات
MUBARAK ABDULLAH AL SUWAIKET SONS CONT. CO.
PROJECTS & INTERIOR

Date : 06/ 11/ 2017
P O # : 1428 / 17

Purchase Order

Project Details

Glass Work @ DAR AS SIHA COFFEE SHOP Project

Vendor Details

M/s. Marsa Al Madinah For Contracting Est. , Att : Joshy , Ref: 04-11-2017

SL #	Description	Qty	Unit	Unit Price	Amount
1	Supply & Installation of 6MM Thick Brown Reflective Tempered Polish Fix Glass	1	NOS	[redacted]	[redacted]
2	Supply & Installation of 6MM Thick Brown Reflective Tempered Glass Inside of the Aluminium Window	2	NOS	[redacted]	[redacted]
	Total				[redacted]

Payment & Delivery Terms

*

* 100% Payment After Completion of Work

Special Remarks :

Prepared By

Admin Dept

Approved By

Division Head

Acceptance Signature and Stamp

On Behalf of Vendor

ص.ب ٤٢٢٨ - الخبر ٣١٩٥٢ - شارع الملك فهد - تقاطع ٢٥ - المملكة العربية السعودية - تلفون: ٨٦٤ ١٣ ٨٦٤ ٩٦٦+ فاكس: ٣٧٧١ ٨٩٣ ١٣ ٩٦٦+
P.O. Box 4228 - Al Khobar 31952 - King Fahad Street - 25th Cross - K.S.A. - Tel.: +966 13 864 5691 - Fax: +966 13 893 3771
Email: info@suwaiketinterior.com - www.suwaiketinterior.com - www.suwaiketprojects.com
س.ت: ٢٠٥١٠٢٣٨٥٨ ، الأشغال: بفلاف، العزيزية، شارع البحرين، الخبر ٣١٩٥٢، المملكة العربية السعودية
CR. No: 2051023858, Works: Buglaf, Aziziyah, Bahrain Road, Al-Khobar 31952, Kingdom of Saudi Arabia

شركة مبارك عبدالله السويكت وأولاده للمقاولات

AlSuwaiket

MUBARAK ABDULLAH AL SUWAIKET SONS CONT. CO.

PROJECTS & INTERIOR

Date : 27 / 11 / 2017
P O # : 1540 / 17

Purchase Order

Project Details	Vendor Details
Glass Work @ ERAM 103 Project	M/s. Marsa Al Madinah For Contracting Est. K.S.A , Attn: Mr.Joshy , Ref Date : 27.11.2017

SL #	Description	Qty	Unit	Unit Price	Amount
1	Supply & Installation of 10MM Thickness Clear Tempered Polish Fix Glass With 4CM SS U Channel	45	M2	[redacted]	[redacted]
2	Supply & Installation of 10MM Thickness Clear Tempered Polish and Cut Out Glass Door With Floor Machine and Accessories	6	M2	[redacted]	[redacted]
					-
					-
					-
	Total				[redacted]

Payment & Delivery Terms

* 100% Payment after Completion of Work

Special Remarks :

Prepared By	Approved By	Acceptance Signature and Stamp
Admin Dept	Division Head	On Behalf of Vendor

Design Solutions • Project Management • Project Execution • Turnkey Solutions

ص.ب ٤٢٢٨ – الخبر ٣١٩٥٢ – شارع الملك فهد – التقاطع ٢٥ – المملكة العربية السعودية – تلفون: ٥٦٩١ ٨٦٤ ١٣ ٩٦٦+ فاكس: ٣٧٧١ ٨٩٣ ١٣ ٩٦٦+
P.O. Box 4228 - Al Khobar 31952 - King Fahad Street - 25th Cross - K.S.A. - Tel.: +966 13 864 5691 - Fax: +966 13 893 3771
Email: info@suwaiketinterior.com - www.suwaiketinterior.com - www.suwaiketprojects.com
س.ت: ٢٠٥١٠٢٣٨٥٨ ، الأشغال: بقلاف، العزيزية، شارع البحرين، الخبر ٣١٩٥٢، المملكة العربية السعودية
CR. No: 2051023858, Works: Buglaf, Aziziyah, Bahrain Road, Al-Khobar 31952, Kingdom of Saudi Arabia

Company Approvals Certification

SETT

VAT No – رقم ضريبة القيمة المضافة :
300627166100003

Email – البريد الإلكتروني :
slasaetrading@gmail.com

Riyadh
Saudi Arabia
Mobile

Invoice No – رقم الفاتورة	PO3
Date – تاريخ	2024-11-25
Time – توقيت	01:21 PM
Place Of Supply – مكان التوريد	Riyadh

Purchase Order

أمر شراء

Supplier – المورد:

Marsa Al Madina general Cont ESt

3866
Al -khobar Dammam
Dammam,
Riyadh, Saudi Arabia,
VAT No.: 310178607700003

Item List – قائمة الأصناف

Sl No رقم Sl	Product Name اسم المنتج	Qty الكمية	Rate السعر	Totd مجموع
1	Supply And Installation Of Ss steel Frame Work	1.0	[redacted]	[redacted]
2	Supply & installation 10 MM GLass door	4.0	[redacted]	[redacted]
3	Supply And Installation of 10 MM Clear Polished Glass	56.0	[redacted]	[redacted]

Amount In Words – المبلغ بالكلمات

[redacted]

Totd VAT – إجمالي ضريبة القيمة المضافة : SR[redacted]

Grand Total – الإجمالي شامل الضريبة : SR[redacted]

ESTABLISHMENT SALSA ALTINWITH ELTQNI FORTRADING
ACC:3443950299940
IBAN:SA2200000034439502999940
RIYAD BANK

Terms & Conditions – الشروط والأحكام

Payment Terms & condition
70 % Advance & 30 % After Supply and Installation

Receiver's Signature
توقيع المتلقي

Authorized Signature
التوقيع المصرح به

Company Approvals Certification

YOUSEF ALI SALEH AL YAMI MAINTENANCE EST.

P.O.Box 20420
Thoqbah 31952
Kingdom of Saudi Arabia
Tel.: 03 890 3692
Fax: 03 890 3728
TIN : 300547074300003
E-Mail : sales@yousefturnery.com

مؤسسة يوسف علي اليامي للخدمات البترولية.

بغلف منطقة الصنا عية
ص . ب ٢٠٤٢٠ ـ الثقبة ٣١٩٥٢
المملكة العربية السعودية
تلفون ٠٣٨٩٠٣٦٩٢
فاكس ٠٣٨٩٠٣٧٢٨
Thoqba

PURCHASE ORDER

Supplier		PO.NO	: **41674/21**
Name:	**MARSA AL - MADINA**	Date	: **7-Nov-2021**
Address	P.O. BOX 30206 - AL-KHOBAR KINGDOM OF SAUDI ARABIA	Payment	:
		YT Ref	: **0**
		Delivery Terms	: ل **End of List**

Attn:
We are pleased to order the following items

Sl.No	Description of Goods	Quantity	Unit Price	Amount
1	**PURCHASE OF** ALUMINIUM TUBE , FRAM AND SHEETS	17 EA	[redacted]	
2	**PURCHASE OF** ALUMINIUM LOUVER	2 EA		
3	**PURCHASE OF** FAN WITH FLY MESH	4 EA		
	VAT - 15%			
[redacted]				[redacted]


HUAWEI nova 9
AI QUAD CAMERA

Black Steel Handrail specifications:

1- Total height (1200 mm).

2- Top decorative hollow section as per sample approval.

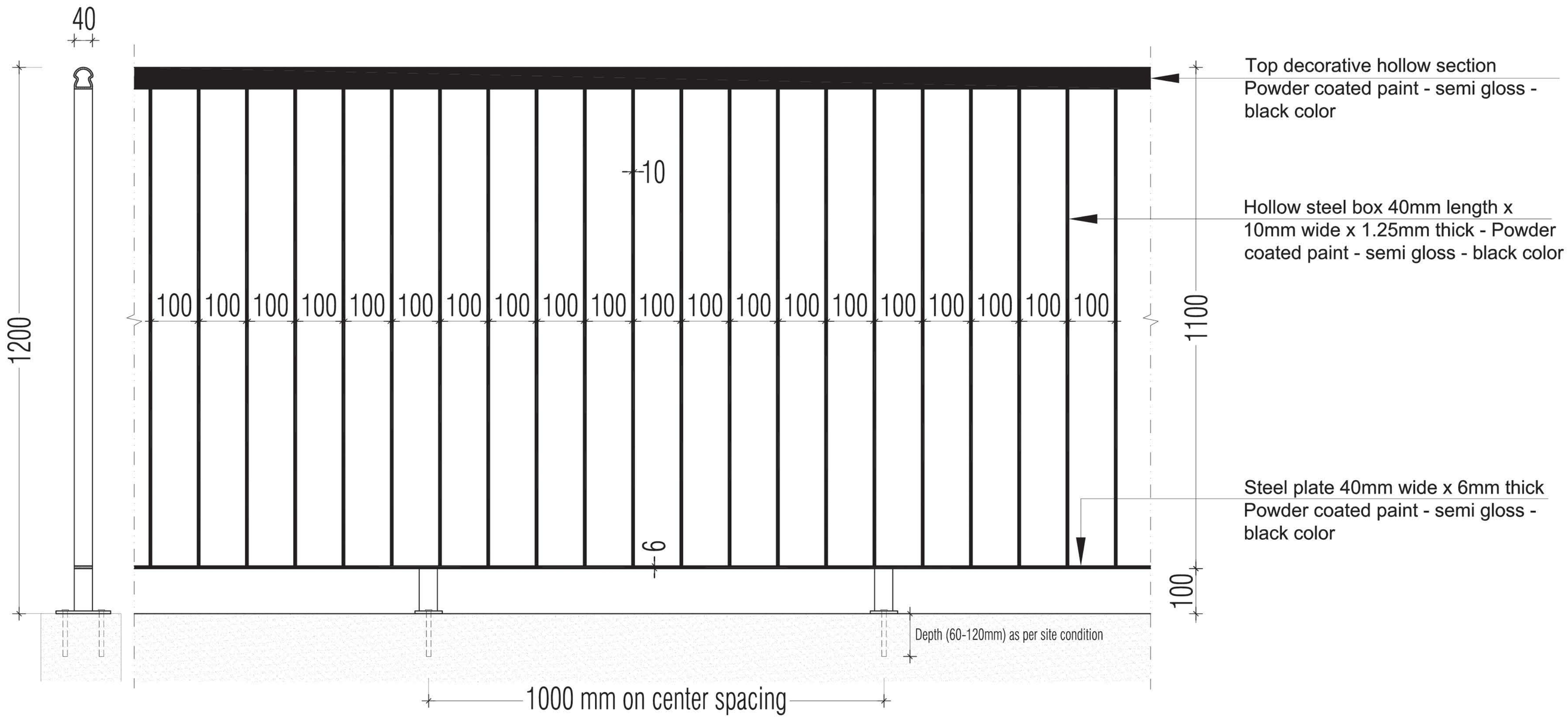
3- Bottom horizontal steel plate (40X6 mm)

4- Internal vertical hollow steel boxes (40X10X1.25 mm) @ 100 mm clear spacing (as per SBC).

5- Bottom fixation to the concrete wall by steel anchors (10 mm dia.) with base plates (60X120X6 mm) @1000 mm spacing.

6- Painting is powder coated, semi gloss and black color.

7- Handrail shall be fabricated in panels (6.00 m) maximum length.



1 STEEL HANDRAIL FOR GENERAL SITE

SCALE NTS

AGIS

AL GHURAIR IRON & STEEL L.L.C

P O BOX - 106065, ABU DHABI,UAE. PHONE +971-2-6593400, FAX NO +971-2-5500949

SAMPLE MILL TEST CERTIFICATE

Customer Name	****	Destination	***	Certificate No.	AGIS/QA/16/012	
Sales Contract No.	****	Treatment	Chromated & Unoiled	L.C. No.	***	
Product	Hot Dipped Galvanized Steel Coils	Spangle Type	Regular	Customer PO No.	***	
Specification & Grade	ASTM A653M / CS TYPE A	Skin Passed	No	DP No.	***	

Sr. No.	Coil/Packet No.	Bundle No.	Dimensions			Sheet	Quantity	% Chemical Composition						Mechanical Properties						
			Thick (mm)	Width (mm)	Length (mtr)	(Nos)	(MT)	C	Mn	S	P	Si	Al	YS (MPa)	TS (MPa)	El (%)	ECV (mm)	Hardness (HRB)	Bend Test	
Coating Grade - 275 GSM																				
1	***	-	1.200	***	Coil	**	**	0.045	0.250	0.013	0.016	0.005	0.036	286	365	31	-	57	OK	-
2	***	-	1.500	***	Coil	**	**	0.050	0.180	0.011	0.013	0.010	0.035	282	359	31	-	55	OK	-
3	***	-	2.000	***	Coil	**	**	0.050	0.210	0.002	0.011	0.010	0.035	272	349	33	-	54	OK	-
No. of Lots - 03				Sub Total			0.000													
Total No. of Lots - 03				Total			0.000													

Note	1. Unless otherwise stated, elongation values are for gauge length 50 mm	For Al Ghurair Iron & Steel L.L.C. Al Ghurair Iron & Steel L.L.C. Quality Assurance Department
Remarks	We hereby certify that the material described herein has/have been made and tested with satisfactory results in accordance with the provisions of contract.	Released by: Rakesh

STEEL TUBE INSTITUTE

HSS

DIMENSIONS AND SECTION PROPERTIES ASTM A500

HSS: TECHNICAL BROCHURE

TABLE OF CONTENTS

NOMENCLATURE

b Nominal width minus 3 times the design wall thickness, t (in.)

C Torsional shear constant of cross-section (in.^{3})

D Outside diameter of round HSS (in.)

h Nominal depth minus 3 times the design wall thickness, t (in.)

I Moment of inertia of cross-section (in.^{4})

J Torsional stiffness constant of cross-section (in.^{4})

r Radius of gyration (in.)

S Elastic section modulus (in.^{3})

t Design wall thickness (in.)

Z Plastic section modulus (in.^{3})

FOREWARD

Note: The information presented in this publication has been prepared in accordance with recognized engineering principles and is for general information only. While it is believed to be accurate, this information should not be used or relied upon for any specific application without competent professional examination and verification of its accuracy, suitability, and applicability by a licensed professional engineer, designer, or architect. The publication of the material contained herein is not intended as a representation or warranty on the part of The Steel Tube Institute or of any other person named herein, that this information is suitable for any general or particular use or of freedom from infringement of any patent or patents. Anyone making use of this information assumes all liability arising from such use.

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DIMENSIONS AND SECTION PROPERTIES OF ROUND HSS

Nominal Size										Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
Outside Diameter	Wall	Weight per Foot	Wall Thickness t	D/t	Cross Sectional Area	I	S	r	Z			
in.	in.	lb.	in.		in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
20.000	0.625	129.47	0.581	34.4	35.44	1670	167	6.87	219	3340	334.00	5.24
20.000	0.250	52.79	0.233	85.8	14.47	707	70.7	6.99	91.0	1410	141.00	5.24
18.000	0.625	116.10	0.581	31.0	31.79	1210	134	6.16	176	2410	268.00	4.71
18.000	0.250	47.44	0.233	77.3	13.01	513	57.0	6.28	73.6	1030	114.00	4.71
16.000	0.625	102.74	0.581	27.5	28.14	838	105	5.46	138	1680	209	4.19
16.000	0.250	42.10	0.233	68.7	11.54	359	44.8	5.58	57.9	717	89.7	4.19
14.000	0.625	89.37	0.581	24.1	24.49	552	78.9	4.75	105	1100	158	3.67
14.000	0.437	63.37	0.406	34.5	17.34	401	57.3	4.81	75.0	802	115	3.67
14.000	0.250	36.75	0.233	60.1	10.08	239	34.1	4.87	44.2	478	68.2	3.67
13.375	0.625	85.20	0.581	23.0	23.35	479	71.6	4.53	95.2	958	143	3.50
13.375	0.500	68.83	0.465	28.8	18.86	393	58.8	4.57	77.5	787	118	3.50
13.375	0.375	52.12	0.349	38.3	14.28	303	45.3	4.61	59.2	606	90.7	3.50
13.375	0.250	35.08	0.233	57.4	9.62	208	31.1	4.65	40.2	415	62.1	3.50
12.750	0.625	81.02	0.581	21.9	22.21	412	64.6	4.31	86.1	824	129	3.34
12.750	0.406	53.58	0.378	33.7	14.69	281	44.1	4.38	57.9	563	88.3	3.34
12.750	0.393	51.92	0.365	34.9	14.20	273	42.8	4.38	56.0	545	85.5	3.34

DIMENSIONS AND SECTION PROPERTIES OF ROUND HSS

Nominal Size												
Outside Diameter	Wall	Weight per Foot	Wall Thickness t	D/t	Cross Sectional Area	I	S	r	Z	Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
in.	in.	lb.	in.		in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
12.000	0.625	76.01	0.581	20.7	20.84	341	56.8	4.04	75.8	681	114	3.14
12.000	0.500	61.48	0.465	25.8	16.85	281	46.8	4.08	61.9	561	93.6	3.14
12.000	0.375	46.61	0.349	34.4	12.77	217	36.2	4.12	47.4	434	72.3	3.14
12.000	0.250	31.41	0.233	51.5	8.61	149	24.9	4.16	32.3	298	49.7	3.14
11.750	0.625	74.34	0.581	20.2	20.39	319	54.3	3.95	72.5	638	109	3.08
11.750	0.500	60.14	0.465	25.3	16.49	263	44.7	3.99	59.3	526	89.5	3.08
11.750	0.375	45.61	0.349	33.7	12.50	203	34.6	4.03	45.4	407	69.2	3.08
11.750	0.322	39.34	0.299	39.3	10.76	176	30.0	4.05	39.2	353	60.1	3.08
11.750	0.250	30.74	0.233	50.4	8.43	140	23.8	4.07	30.9	280	47.6	3.08
10.750	0.625	67.66	0.581	18.5	18.56	241	44.8	3.60	60.1	481	89.6	2.81
10.750	0.375	41.60	0.349	30.8	11.40	154	28.7	3.68	37.8	309	57.4	2.81
10.750	0.313	34.93	0.291	36.9	9.56	131	24.3	3.70	31.8	262	48.7	2.81
10.750	0.188	21.23	0.175	61.4	5.81	81.3	15.1	3.74	19.6	163	30.2	2.81
9.625	0.625	60.14	0.581	16.6	16.51	169	35.2	3.20	47.6	339	70.4	2.52
8.625	0.625	53.46	0.581	14.8	14.68	119	27.7	2.85	37.7	239	55.4	2.26
8.625	0.125	11.36	0.116	74.4	3.10	28.1	6.51	3.01	8.40	56.1	13.0	2.26

DIMENSIONS AND SECTION PROPERTIES OF ROUND HSS

Nominal Size										Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
Outside Diameter	Wall	Weight per Foot	Wall	D/t	Cross Sectional Area	I	S	r	Z			
in.	in.	lb.	in.		in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
6.625	0.437	28.91	0.406	16.3	7.93	38.5	11.6	2.20	15.7	77.0	23.3	1.73
6.625	0.134	9.30	0.125	53.0	2.55	13.5	4.07	2.30	5.28	27.0	8.14	1.73
5.563	0.500	27.07	0.465	12.0	7.45	24.4	8.77	1.81	12.1	48.8	17.5	1.46
4.500	0.375	16.54	0.349	12.9	4.55	9.87	4.39	1.47	6.03	19.7	8.78	1.18
4.500	0.120	5.62	0.112	40.2	1.54	3.72	1.65	1.55	2.16	7.44	3.31	1.18
4.000	0.318	12.52	0.296	13.5	3.44	5.94	2.97	1.31	4.07	11.9	5.94	1.05
4.000	0.120	4.96	0.112	35.7	1.37	2.59	1.29	1.38	1.69	5.17	2.59	1.05
3.500	0.219	7.68	0.204	17.2	2.11	2.88	1.65	1.17	2.22	5.76	3.29	0.92
3.500	0.120	4.32	0.112	31.3	1.19	1.71	0.978	1.20	1.29	3.42	1.96	0.92
3.000	0.125	3.84	0.116	25.9	1.05	1.09	0.730	1.02	0.965	2.19	1.46	0.79
2.875	0.276	7.67	0.257	11.2	2.11	1.83	1.27	0.930	1.77	3.66	2.54	0.75
2.875	0.120	3.53	0.112	25.7	0.97	0.929	0.646	0.978	0.855	1.86	1.29	0.75
2.375	0.109	2.64	0.101	23.5	0.72	0.467	0.394	0.805	0.523	0.935	0.787	0.62
2.25	0.250	5.35	0.233	9.7	1.48	0.761	0.676	0.718	0.952	1.52	1.35	0.59
				12.9	1.13	0.616	0.547	0.737	0.752	1.23	1.09	0.59
				19.4	0.78	0.444	0.395	0.756	0.529	0.888	0.789	0.59

DIMENSIONS AND SECTION PROPERTIES OF ROUND HSS

Nominal Size										Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
Outside Diameter	Wall	Weight per Foot	Wall	D/t	Cross Sectional Area	I	S	r	Z			
in.	in.	lb.	in.		in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
2.000	0.120	2.40	0.112	17.9	0.66	0.297	0.297	0.669	0.400	0.594	0.594	0.52
1.900	0.188	3.44	0.174	10.9	0.94	0.355	0.374	0.613	0.520	0.710	0.747	0.50
1.900	0.134	2.53	0.125	15.2	0.70	0.276	0.290	0.629	0.394	0.552	0.581	0.50
1.900	0.125	2.37	0.116	16.4	0.65	0.260	0.273	0.632	0.370	0.519	0.547	0.50
1.900	0.120	2.28	0.112	17.0	0.63	0.252	0.266	0.633	0.359	0.505	0.531	0.50
1.900	0.109	2.09	0.101	18.8	0.57	0.232	0.244	0.637	0.327	0.463	0.488	0.50
1.900	0.100	1.92	0.093	20.4	0.53	0.216	0.227	0.640	0.304	0.432	0.455	0.50
1.660	0.134	2.19	0.125	13.3	0.60	0.179	0.215	0.545	0.295	0.357	0.431	0.43
1.660	0.125	2.05	0.116	14.3	0.56	0.169	0.203	0.547	0.277	0.337	0.406	0.43
1.660	0.109	1.81	0.101	16.4	0.49	0.151	0.182	0.552	0.246	0.302	0.364	0.43
1.660	0.083	1.40	0.077	21.6	0.38	0.120	0.145	0.560	0.193	0.240	0.290	0.43
1.500	0.120	1.77	0.112	13.4	0.49	0.118	0.158	0.492	0.216	0.237	0.316	0.39
1.315	0.133	1.68	0.124	10.6	0.46	0.083	0.126	0.423	0.177	0.166	0.253	0.34
1.315	0.125	1.59	0.116	11.3	0.44	0.079	0.121	0.426	0.167	0.159	0.241	0.34
1.315	0.083	1.09	0.077	17.1	0.30	0.058	0.088	0.439	0.118	0.115	0.175	0.34
1.250	0.120	1.45	0.112	11.2	0.40	0.065	0.105	0.404	0.146	0.131	0.209	0.33
1.000	0.120	1.13	0.112	8.9	0.31	0.031	0.063	0.316	0.089	0.063	0.125	0.26

DIMENSIONS AND SECTION PROPERTIES OF SQUARE HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	I	S	r	Z	Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
22	22	0.875		244.91	0.814	24.0	24.0	67.28	4967.3	451.6	8.59	529.8	7891.7	728.6	7.10
22	22	0.750		212.02	0.698	28.5	28.5	58.22	4354.7	395.9	8.65	461.6	6863.9	632.2	7.13
20	20	0.875		221.09	0.814	21.6	21.6	60.76	3674.1	367.4	7.78	432.9	5869.2	597.2	6.43
20	20	0.750		191.61	0.698	25.7	25.7	52.64	3228.6	322.9	7.83	377.9	5113.2	518.8	6.47
18	18	0.875		197.27	0.814	19.1	19.1	54.25	2627.3	291.9	6.96	345.8	4225.0	478.8	5.77
18	18	0.750		171.19	0.698	22.8	22.8	47.05	2315.5	257.3	7.02	302.5	3688.4	416.6	5.80
16	16	0.875		173.45	0.814	16.7	16.7	47.74	1801.0	225.1	6.14	268.5	2919.9	373.4	5.10
16	16	0.750		150.77	0.698	19.9	19.9	41.47	1593.1	199.1	6.20	235.5	2555.9	325.6	5.13
16	16	0.250		53.05	0.233	65.7	65.7	14.56	600.1	75.0	6.42	85.8	921.3	115.8	5.27
14	14	0.875		149.62	0.814	14.2	14.2	41.23	1169.0	167.0	5.32	200.9	1915.0	281.0	4.43
14	14	0.750		130.35	0.698	17.1	17.1	35.88	1039.1	148.4	5.38	176.8	1682.3	245.7	4.47
14	14	0.250		46.25	0.233	57.1	57.1	12.69	398.7	57.0	5.60	65.3	614.0	88.3	4.60
12	12	0.750		109.93	0.698	14.2	14.2	30.30	631.2	105.2	4.56	126.5	1034.0	177.0	3.80
12	12	0.188		29.84	0.174	66.0	66.0	8.15	189.1	31.5	4.82	36.0	290.3	48.6	3.95
10	10	0.750		89.51	0.698	11.3	11.3	24.72	347.0	69.4	3.75	84.7	577.6	119.5	3.13

DIMENSIONS AND SECTION PROPERTIES OF SQUARE HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Section-al Area	I	S	r	Z	Torsional Stiffness Constant J	Torsion-al Shear Constant C	Surface Area per Foot
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
9	9	0.625		67.83	0.581	12.5	12.5	18.70	215.5	47.9	3.40	58.1	356.2	81.6	2.83
9	9	0.125		14.96	0.116	74.6	74.6	4.09	53.5	11.9	3.62	13.6	82.0	18.3	2.97
8	8	0.125		13.26	0.116	66.0	66.0	3.62	37.4	9.3	3.21	10.7	57.3	14.4	2.63
7	7	0.125		11.56	0.116	57.3	57.3	3.16	24.8	7.1	2.80	8.1	38.2	11.0	2.30
6	6	0.134	10	10.54	0.125	45.0	45.0	2.90	16.5	5.5	2.39	6.4	25.7	8.6	1.96
6	6	0.120	11	9.48	0.112	50.6	50.6	2.61	15.0	5.0	2.40	5.7	23.1	7.8	1.97
5.5	5.5	0.134	10	9.63	0.125	41.0	41.0	2.65	12.6	4.6	2.19	5.3	19.7	7.2	1.80
5.5	5.5	0.120	11	8.66	0.112	46.1	46.1	2.38	11.4	4.2	2.19	4.8	17.7	6.5	1.80
5	5	0.134	10	8.72	0.125	37.0	37.0	2.40	9.4	3.8	1.98	4.4	14.7	5.9	1.63
5	5	0.120	11	7.85	0.112	41.6	41.6	2.16	8.5	3.4	1.99	3.9	13.2	5.3	1.63
4.5	4.5	0.134	10	7.81	0.125	33.0	33.0	2.15	6.8	3.02	1.78	3.5	10.6	4.8	1.46
4.5	4.5	0.120	11	7.03	0.112	37.2	37.2	1.93	6.2	2.73	1.78	3.2	9.6	4.3	1.47
4	4	0.134	10	6.89	0.125	29.0	29.0	1.90	4.7	2.35	1.57	2.74	7.4	3.7	1.30
4	4	0.120	11	6.21	0.112	32.7	32.7	1.71	4.3	2.13	1.58	2.48	6.7	3.4	1.30
4	4	0.105	12	5.45	0.097	38.2	38.2	1.49	3.8	1.88	1.59	2.17	5.8	3.0	1.31
4	4	0.095	13	4.97	0.088	42.5	42.5	1.36	3.4	1.72	1.59	1.98	5.3	2.7	1.31
4	4	0.083	14	4.37	0.077	48.9	48.9	1.19	3.0	1.52	1.60	1.75	4.7	2.4	1.31

DIMENSIONS AND SECTION PROPERTIES OF SQUARE HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	I	S	r	Z	Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
3.5	3.5	0.134	10	5.98	0.125	25.0	25.0	1.65	3.09	1.76	1.37	2.07	4.9	2.84	1.13
3.5	3.5	0.120	11	5.40	0.112	28.3	28.3	1.49	2.81	1.61	1.38	1.87	4.4	2.57	1.13
3.5	3.5	0.105	12	4.74	0.097	33.1	33.1	1.30	2.48	1.42	1.38	1.64	3.9	2.24	1.14
3.5	3.5	0.095	13	4.32	0.088	36.8	36.8	1.18	2.27	1.30	1.39	1.50	3.5	2.05	1.14
3.5	3.5	0.083	14	3.80	0.077	42.3	42.3	1.04	2.02	1.15	1.39	1.33	3.1	1.81	1.14
3	3	0.165		6.13	0.153	16.6	16.6	1.68	2.230	1.487	1.15	1.773	3.62	2.466	0.96
3	3	0.134	10	5.07	0.125	21.0	21.0	1.40	1.896	1.264	1.16	1.491	3.03	2.059	0.96
3	3	0.120	11	4.58	0.112	23.8	23.8	1.26	1.731	1.154	1.17	1.354	2.75	1.863	0.97
3	3	0.105	12	4.03	0.097	27.9	27.9	1.10	1.531	1.020	1.18	1.191	2.41	1.631	0.97
3	3	0.095	13	3.68	0.088	31.1	31.1	1.01	1.406	0.937	1.18	1.090	2.21	1.490	0.97
3	3	0.083	14	3.24	0.077	36.0	36.0	0.89	1.249	0.833	1.19	0.964	1.95	1.314	0.98
3	3	0.060		2.37	0.056	50.6	50.6	0.65	0.935	0.623	1.20	0.716	1.44	0.970	0.98
2.5	2.5	0.313		8.45	0.291	5.6	5.6	2.35	1.82	1.45	0.879	1.88	3.20	2.74	0.75
2.5	2.5	0.238		6.83	0.221	8.3	8.3	1.89	1.58	1.26	0.914	1.58	2.69	2.25	0.77
2.5	2.5	0.165		5.01	0.153	13.3	13.3	1.38	1.23	0.99	0.947	1.19	2.03	1.67	0.79
2.5	2.5	0.134	10	4.16	0.125	17.0	17.0	1.15	1.06	0.85	0.961	1.01	1.71	1.40	0.80
2.5	2.5	0.120	11	3.76	0.112	19.3	19.3	1.04	0.97	0.78	0.967	0.92	1.56	1.27	0.80
2.5	2.5	0.105	12	3.31	0.097	22.8	22.8	0.91	0.86	0.69	0.974	0.81	1.37	1.12	0.81
2.5	2.5	0.095	13	3.03	0.088	25.4	25.4	0.83	0.79	0.64	0.979	0.74	1.26	1.02	0.81
2.5	2.5	0.083	14	2.67	0.077	29.5	29.5	0.73	0.71	0.57	0.984	0.66	1.11	0.90	0.81

DIMENSIONS AND SECTION PROPERTIES OF SQUARE HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	I	S	r	Z	Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
2.12	2.12	0.188		4.64	0.174	9.2	9.2	1.28	0.786	0.740	0.784	0.916	1.33	1.30	0.66
2.12	2.12	0.134	10	3.47	0.125	14.0	14.0	0.96	0.626	0.589	0.808	0.709	1.03	0.992	0.67
2.12	2.12	0.125		3.27	0.116	15.3	15.3	0.90	0.592	0.557	0.812	0.667	0.964	0.930	0.68
2	2	0.134	10	3.25	0.125	13.0	13.0	0.90	0.513	0.513	0.756	0.621	0.846	0.871	0.63
2	2	0.120	11	2.94	0.112	14.9	14.9	0.81	0.473	0.473	0.763	0.568	0.773	0.793	0.63
2	2	0.105	12	2.60	0.097	17.6	17.6	0.71	0.423	0.423	0.770	0.504	0.684	0.699	0.64
2	2	0.100		2.50	0.093	18.5	18.5	0.69	0.410	0.410	0.772	0.486	0.660	0.673	0.64
2	2	0.095	13	2.38	0.088	19.7	19.7	0.65	0.392	0.392	0.774	0.463	0.629	0.641	0.64
2	2	0.083	14	2.11	0.077	23.0	23.0	0.58	0.351	0.351	0.780	0.412	0.559	0.568	0.64
1.75	1.75	0.120	11	2.53	0.112	12.6	12.6	0.70	0.306	0.350	0.661	0.424	0.506	0.596	0.55
1.5	1.5	0.250		3.71	0.233	3.4	3.4	1.04	0.258	0.343	0.497	0.469	0.470	0.699	0.43
1.5	1.5	0.120	11	2.13	0.112	10.4	10.4	0.59	0.184	0.245	0.558	0.301	0.308	0.426	0.47
1.5	1.5	0.100		1.82	0.093	13.1	13.1	0.50	0.162	0.215	0.568	0.260	0.266	0.365	0.47
1.5	1.5	0.083	14	1.54	0.077	16.5	16.5	0.42	0.140	0.187	0.575	0.223	0.227	0.310	0.48
1.25	1.25	0.120	11	1.72	0.112	8.2	8.2	0.48	0.099	0.159	0.456	0.199	0.170	0.285	0.38
1.25	1.25	0.100		1.48	0.093	10.4	10.4	0.41	0.088	0.142	0.466	0.174	0.148	0.246	0.39
1.25	1.25	0.083	14	1.26	0.077	13.2	13.2	0.35	0.078	0.124	0.473	0.150	0.128	0.210	0.39

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	I	S	r	Z	Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	ft.2
1	1	0.125		1.35	0.116	5.6	5.6	0.38	0.046	0.093	0.352	0.120	0.082	0.175	0.30
1	1	0.120	11	1.31	0.112	5.9	5.9	0.37	0.046	0.091	0.354	0.118	0.080	0.171	0.30
1	1	0.100		1.14	0.093	7.8	7.8	0.32	0.042	0.083	0.363	0.104	0.071	0.150	0.31
1	1	0.083	14	0.98	0.077	10.0	10.0	0.27	0.037	0.074	0.371	0.091	0.062	0.129	0.31

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
24	12	0.750		171.19	0.698	14.2	31.4	47.05	3440	287	8.55	359	1170	194	4.98	221	2850	366	5.80
24	12	0.625		144.40	0.581	17.7	38.3	39.61	2940	245	8.62	304	1000	167	5.03	188	2430	310	5.83
24	12	0.500		116.92	0.465	22.8	48.6	32.06	2420	202	8.69	248	829	138	5.08	154	1980	252	5.87
20	12	0.750		150.77	0.698	14.2	25.7	41.47	2190	219	7.26	270	988	165	4.88	190	2220	303	5.13
20	12	0.313		65.88	0.291	38.2	65.7	18.07	1010	101	7.48	122	464	77.3	5.07	85.8	997	134	5.25
20	12	0.250		53.05	0.233	48.5	82.8	14.56	822	82.2	7.51	98.3	377	62.9	5.09	69.5	806	108	5.27
20	8	0.750		130.35	0.698	8.5	25.7	35.88	1670	167	6.82	216	388	97.0	3.29	112	1060	195	4.47
20	8	0.313		57.37	0.291	24.5	65.7	15.74	786	78.6	7.07	98.6	189	47.4	3.47	52.0	496	88.3	4.58
20	8	0.250		46.25	0.233	31.3	82.8	12.69	640	64.0	7.10	79.9	155	38.8	3.50	42.3	403	71.5	4.60
20	4	0.313		48.86	0.291	10.7	65.7	13.41	560	56.0	6.46	75.6	41.2	20.6	1.75	22.9	134	42.4	3.92
20	4	0.250		39.44	0.233	14.2	82.8	10.83	458	45.8	6.50	61.5	34.3	17.1	1.78	18.7	111	34.7	3.93
16	12	0.750		130.35	0.698	14.2	19.9	35.88	1270	158	5.94	193	810	135	4.75	158	1610	240	4.47
16	12	0.250		46.25	0.233	48.5	65.7	12.69	484	60.5	6.18	71.1	313	52.1	4.96	58.5	588	86.4	4.60
16	8	0.250		39.44	0.233	31.3	65.7	10.83	368	46.1	5.83	56.4	127	31.7	3.42	35.00	300	57.0	3.93
16	4	0.250		32.63	0.233	14.2	65.7	8.96	253	31.6	5.31	41.7	27.7	13.8	1.76	15.2	85.2	27.6	3.27
16	4	0.188		24.74	0.174	20.0	89.0	6.76	193	24.2	5.35	31.7	21.5	10.8	1.78	11.7	65.5	21.1	3.28

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
12	2	0.313		27.59	0.291	3.9	38.2	7.59	104	17.4	3.71	24.5	5.09	5.09	0.819	6.05	17.6	11.6	2.25
10	8	0.625		67.83	0.581	10.8	14.2	18.70	253	50.5	3.68	62.2	178	44.5	3.09	53.3	346	80.4	2.83
10	4	0.125		11.56	0.116	31.5	83.2	3.16	39.8	7.97	3.55	9.95	9.65	4.83	1.75	5.26	25.1	8.90	2.30
10	3.5	0.500		40.35	0.465	4.5	18.5	11.13	118	23.7	3.26	31.9	21.4	12.2	1.39	14.7	63.2	26.5	2.12
10	3.5	0.375		31.31	0.349	7.0	25.7	8.62	96.1	19.2	3.34	25.3	17.8	10.2	1.44	11.8	51.5	21.1	2.15
10	3.5	0.313		26.53	0.291	9.0	31.4	7.30	83.2	16.6	3.38	21.7	15.6	8.92	1.46	10.2	44.6	18.0	2.17
10	3.5	0.250		21.57	0.233	12.0	39.9	5.93	69.1	13.8	3.41	17.9	13.1	7.50	1.49	8.45	37.0	14.8	2.18
10	3.5	0.188		16.44	0.174	17.1	54.5	4.50	53.6	10.7	3.45	13.7	10.3	5.89	1.51	6.52	28.6	11.4	2.20
10	3.5	0.134		11.91	0.125	25.0	77.0	3.27	39.6	7.93	3.48	10.1	7.72	4.41	1.54	4.81	21.2	8.32	2.21
10	3.5	0.125		11.14	0.116	27.2	83.2	3.04	37.0	7.40	3.49	9.37	7.22	4.12	1.54	4.48	19.8	7.75	2.22
10	3	0.134	10	11.45	0.125	21.0	77.0	3.15	36.6	7.32	3.41	9.44	5.51	3.68	1.32	4.01	16.0	7.09	2.13
10	2	0.134	10	10.54	0.125	13.0	77.0	2.90	30.5	6.10	3.24	8.21	2.27	2.27	0.89	2.50	7.37	4.62	1.96
10	2	0.125		9.86	0.116	14.2	83.2	2.70	28.5	5.70	3.25	7.65	2.14	2.14	0.89	2.33	6.90	4.31	1.97
10	2	0.120	11	9.48	0.112	14.9	86.3	2.61	27.6	5.52	3.25	7.41	2.07	2.07	0.89	2.26	6.69	4.18	1.97
9	3	0.134	10	10.54	0.125	21.0	69.0	2.90	27.9	6.20	3.10	7.93	5.00	3.33	1.31	3.65	14.0	6.37	1.96
9	3	0.120	11	9.48	0.112	23.8	77.4	2.61	25.2	5.61	3.11	7.15	4.53	3.02	1.32	3.29	12.7	5.74	1.97

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
8	4	0.134	10	10.54	0.125	29.0	61.0	2.90	24.6	6.14	2.91	7.53	8.45	4.23	1.71	4.67	20.0	7.62	1.96
8	4	0.120	11	9.48	0.112	32.7	68.4	2.61	22.2	5.55	2.92	6.79	7.65	3.83	1.71	4.22	18.1	6.86	1.97
8	3.5	0.313		22.28	0.291	9.0	24.5	6.14	46.7	11.7	2.76	15.0	12.6	7.20	1.43	8.34	33.3	14.3	1.83
8	3.5	0.250		18.17	0.233	12.0	31.3	5.00	39.0	9.76	2.79	12.4	10.6	6.08	1.46	6.92	27.7	11.8	1.85
8	3.5	0.188		13.89	0.174	17.1	43.0	3.80	30.4	7.60	2.83	9.55	8.38	4.79	1.48	5.36	21.5	9.04	1.87
8	3.5	0.134	10	10.09	0.125	25.0	61.0	2.77	22.6	5.66	2.86	7.04	6.29	3.60	1.51	3.97	15.9	6.64	1.88
8	3.5	0.120	11	9.07	0.112	28.3	68.4	2.49	20.5	5.12	2.86	6.35	5.70	3.26	1.51	3.58	14.3	5.98	1.88
8	3	0.134	10	9.63	0.125	21.0	61.0	2.65	20.7	5.17	2.80	6.55	4.48	2.99	1.30	3.29	12.1	5.65	1.80
8	3	0.120	11	8.66	0.112	23.8	68.4	2.38	18.7	4.68	2.80	5.91	4.07	2.71	1.31	2.97	10.9	5.10	1.80
8	2	0.120	11	7.85	0.112	14.9	68.4	2.16	15.2	3.81	2.66	5.02	1.67	1.67	0.880	1.84	5.14	3.33	1.63
7	5	0.134	10	10.54	0.125	37.0	53.0	2.90	20.7	5.91	2.67	7.00	12.4	4.95	2.07	5.58	24.2	8.37	1.96
7	5	0.120	11	9.48	0.112	41.6	59.5	2.61	18.7	5.34	2.68	6.32	11.2	4.48	2.07	5.03	21.8	7.54	1.97
7	4	0.134	10	9.63	0.125	29.0	53.0	2.65	17.7	5.07	2.59	6.15	7.51	3.76	1.68	4.19	16.7	6.65	1.80
7	4	0.120	11	8.66	0.112	32.7	59.5	2.38	16.0	4.58	2.60	5.54	6.81	3.40	1.69	3.78	15.1	5.99	1.80
7	3	0.134	10	8.72	0.125	21.0	53.0	2.40	14.8	4.22	2.48	5.29	3.96	2.64	1.29	2.93	10.2	4.93	1.63
7	3	0.120	11	7.85	0.112	23.8	59.5	2.16	13.4	3.83	2.49	4.77	3.60	2.40	1.29	2.65	9.18	4.45	1.63

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
7	2	0.250		13.92	0.233	5.6	27.0	3.84	19.8	5.67	2.27	7.64	2.57	2.57	0.82	3.02	7.95	5.52	1.43
7	2	0.188		10.70	0.174	8.5	37.2	2.93	15.7	4.49	2.31	5.95	2.09	2.09	0.85	2.39	6.35	4.32	1.45
7	2	0.134	10	7.81	0.125	13.0	53.0	2.15	11.8	3.38	2.35	4.43	1.61	1.61	0.87	1.79	4.81	3.22	1.46
7	2	0.125		7.31	0.116	14.2	57.3	2.00	11.1	3.16	2.35	4.13	1.52	1.52	0.87	1.68	4.51	3.00	1.47
7	2	0.120	11	7.03	0.112	14.9	59.5	1.93	10.7	3.07	2.36	4.00	1.47	1.47	0.87	1.63	4.37	2.91	1.47
6	5	0.500		31.84	0.465	7.8	9.9	8.81	41.1	13.7	2.16	17.2	30.8	12.30	1.87	15.2	59.8	23.0	1.70
6	5	0.134	10	9.63	0.125	37.0	45.0	2.65	14.4	4.80	2.33	5.62	10.9	4.36	2.03	4.97	19.3	7.15	1.80
6	5	0.125		9.01	0.116	40.1	48.7	2.46	13.4	4.48	2.34	5.24	10.2	4.07	2.03	4.63	18.0	6.66	1.80
6	5	0.120	11	8.66	0.112	41.6	50.6	2.38	13.0	4.34	2.34	5.07	9.86	3.95	2.04	4.48	17.4	6.44	1.80
6	4	0.134	10	8.72	0.125	29.0	45.0	2.40	12.2	4.08	2.26	4.88	6.57	3.29	1.66	3.71	13.5	5.68	1.63
6	4	0.120	11	7.85	0.112	32.7	50.6	2.16	11.1	3.69	2.27	4.41	5.96	2.98	1.66	3.35	12.2	5.12	1.63
6	3.5	0.250		14.77	0.233	12.0	22.8	4.07	18.9	6.31	2.16	7.86	8.15	4.66	1.42	5.40	18.7	8.73	1.52
6	3.5	0.188		11.34	0.174	17.1	31.5	3.11	14.9	4.96	2.19	6.10	6.46	3.69	1.44	4.20	14.5	6.72	1.53
6	3.5	0.134	10	8.26	0.125	25.0	45.0	2.27	11.2	3.72	2.22	4.52	4.87	2.78	1.46	3.12	10.8	4.95	1.55
6	3.5	0.120	11	7.44	0.112	28.3	50.6	2.05	10.1	3.37	2.22	4.08	4.42	2.52	1.47	2.82	9.74	4.46	1.55
6	3	0.134	10	7.81	0.125	21.0	45.0	2.15	10.1	3.36	2.17	4.15	3.45	2.30	1.27	2.57	8.27	4.22	1.46
6	3	0.120	11	7.03	0.112	23.8	50.6	1.93	9.14	3.05	2.17	3.75	3.13	2.09	1.27	2.32	7.48	3.80	1.47

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
6	2.5	0.250		13.07	0.233	7.7	22.8	3.60	15.1	5.02	2.04	6.51	3.73	2.98	1.02	3.48	10.1	6.04	1.35
6	2.5	0.188		10.06	0.174	11.4	31.5	2.76	11.9	3.98	2.08	5.08	3.00	2.40	1.04	2.74	7.99	4.70	1.37
6	2.5	0.134	10	7.35	0.125	17.0	45.0	2.02	9.00	3.00	2.11	3.78	2.29	1.84	1.07	2.05	5.99	3.48	1.38
6	2.5	0.120	11	6.62	0.112	19.3	50.6	1.82	8.2	2.72	2.12	3.4	2.09	1.67	1.07	1.86	5.43	3.14	1.38
6	2.5	0.105	12	5.81	0.097	22.8	58.9	1.59	7.17	2.39	2.13	2.99	1.84	1.47	1.08	1.63	4.76	2.75	1.39
6	2.5	0.095	13	5.29	0.088	25.4	65.2	1.45	6.56	2.19	2.13	2.73	1.69	1.35	1.08	1.49	4.35	2.51	1.39
6	2	0.134	10	6.89	0.125	13.0	45.0	1.90	7.92	2.64	2.04	3.42	1.39	1.39	0.857	1.56	3.98	2.75	1.30
6	2	0.120	11	6.21	0.112	14.9	50.6	1.71	7.19	2.40	2.05	3.09	1.27	1.27	0.863	1.41	3.61	2.48	1.30
6	2	0.105	12	5.45	0.097	17.6	58.9	1.49	6.33	2.11	2.06	2.71	1.13	1.13	0.870	1.24	3.18	2.18	1.31
6	2	0.095	13	4.97	0.088	19.7	65.2	1.36	5.80	1.93	2.07	2.47	1.04	1.04	0.874	1.14	2.91	1.99	1.31
6	2	0.083	14	4.37	0.077	23.0	74.9	1.19	5.13	1.71	2.07	2.18	0.921	0.921	0.878	1.00	2.57	1.75	1.31
5.5	3.5	0.250		13.92	0.233	12.0	20.6	3.84	15.20	5.55	1.99	6.87	7.53	4.30	1.40	5.02	16.6	7.97	1.43
5.5	3.5	0.188		10.70	0.174	17.1	28.6	2.93	12.00	4.37	2.03	5.34	5.98	3.42	1.43	3.91	12.9	6.14	1.45
5.5	3.5	0.134	10	7.81	0.125	25.0	41.0	2.15	9.04	3.29	2.05	3.96	4.51	2.58	1.45	2.91	9.55	4.53	1.46
5.5	3.5	0.120	11	7.03	0.112	28.3	46.1	1.93	8.19	2.98	2.06	3.58	4.10	2.34	1.46	2.63	8.62	4.08	1.47
5	4.5	0.250		14.77	0.233	16.3	18.5	4.07	14.7	5.88	1.90	7.05	12.50	5.55	1.75	6.56	21.8	9.43	1.52
5	4.5	0.188		11.34	0.174	22.9	25.7	3.11	11.6	4.63	1.93	5.47	9.84	4.37	1.78	5.09	16.9	7.24	1.53
5	4.5	0.134	10	8.26	0.125	33.0	37.0	2.27	8.67	3.47	1.95	4.05	7.38	3.28	1.80	3.77	12.5	5.32	1.55
5	4.5	0.120	11	7.44	0.112	37.2	41.6	2.05	7.86	3.14	1.96	3.66	6.69	2.97	1.81	3.41	11.3	4.80	1.55

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
5	4	0.125		7.31	0.116	31.5	40.1	2.00	7.42	2.97	1.93	3.50	5.27	2.64	1.62	3.01	9.66	4.39	1.47
5	4	0.120	11	7.03	0.112	32.7	41.6	1.93	7.19	2.88	1.93	3.39	5.11	2.56	1.63	2.91	9.35	4.25	1.47
5	3.5	0.250		13.07	0.233	12.0	18.5	3.60	12.0	4.82	1.83	5.94	6.91	3.95	1.38	4.64	14.4	7.21	1.35
5	3.5	0.188		10.06	0.174	17.1	25.7	2.76	9.54	3.82	1.86	4.63	5.49	3.14	1.41	3.62	11.2	5.57	1.37
5	3.5	0.134	10	7.35	0.125	25.0	37.0	2.02	7.19	2.87	1.89	3.44	4.16	2.38	1.43	2.70	8.34	4.11	1.38
5	3.5	0.120	11	6.62	0.112	28.3	41.6	1.82	6.52	2.61	1.89	3.11	3.77	2.16	1.44	2.44	7.53	3.70	1.38
5	3.5	0.105	12	5.81	0.097	33.1	48.5	1.59	5.73	2.29	1.90	2.72	3.32	1.90	1.45	2.14	6.59	3.23	1.39
5	3.5	0.095	13	5.29	0.088	36.8	53.8	1.45	5.24	2.10	1.90	2.49	3.04	1.74	1.45	1.95	6.01	2.95	1.39
5	3	0.134	10	6.89	0.125	21.0	37.0	1.90	6.44	2.58	1.84	3.14	2.93	1.95	1.24	2.21	6.44	3.50	1.30
5	3	0.120	11	6.21	0.112	23.8	41.6	1.71	5.85	2.34	1.85	2.84	2.67	1.78	1.25	2.00	5.83	3.16	1.30
5	3	0.105	12	5.45	0.097	27.9	48.5	1.49	5.14	2.06	1.86	2.49	2.35	1.57	1.26	1.75	5.10	2.76	1.31
5	3	0.095	13	4.97	0.088	31.1	53.8	1.36	4.71	1.88	1.86	2.27	2.15	1.44	1.26	1.60	4.66	2.51	1.31
5.5	2	0.250		11.36	0.233	5.6	20.6	3.14	10.4	3.78	1.82	5.03	2.03	2.03	0.803	2.40	5.86	4.29	1.18
5.5	2	0.188		8.78	0.174	8.5	28.6	2.41	8.33	3.03	1.86	3.95	1.66	1.66	0.829	1.91	4.69	3.36	1.20
5.5	2	0.134	10	6.44	0.125	13.0	41.0	1.77	6.33	2.30	1.89	2.96	1.28	1.28	0.851	1.44	3.56	2.51	1.21
5.5	2	0.120	11	5.80	0.112	14.9	46.1	1.60	5.75	2.09	1.90	2.68	1.17	1.17	0.857	1.31	3.23	2.27	1.22
5.5	2	0.105	12	5.09	0.097	17.6	53.7	1.39	5.07	1.84	1.91	2.35	1.04	1.04	0.863	1.15	2.85	1.99	1.22
5.5	2	0.095	13	4.65	0.088	19.7	59.5	1.27	4.64	1.69	1.91	2.15	0.955	0.955	0.867	1.05	2.61	1.82	1.22

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
5	2.5	0.165		7.81	0.153	13.3	29.7	2.14	6.76	2.71	1.78	3.39	2.29	1.83	1.03	2.09	5.61	3.47	1.21
5	2.5	0.134	10	6.44	0.125	17.0	37.0	1.77	5.70	2.28	1.79	2.83	1.94	1.55	1.05	1.75	4.70	2.89	1.21
5	2.5	0.120	11	5.80	0.112	19.3	41.6	1.60	5.18	2.07	1.80	2.57	1.77	1.42	1.05	1.59	4.26	2.61	1.22
5	2.5	0.105	12	5.09	0.097	22.8	48.5	1.39	4.56	1.82	1.81	2.25	1.56	1.25	1.06	1.39	3.74	2.28	1.22
5	2.5	0.095	13	4.65	0.088	25.4	53.8	1.27	4.18	1.67	1.81	2.06	1.43	1.15	1.06	1.27	3.42	2.08	1.22
5	2	0.134	10	5.98	0.125	13.0	37.0	1.65	4.96	1.98	1.73	2.53	1.17	1.17	0.844	1.32	3.15	2.28	1.13
5	2	0.120	11	5.40	0.112	14.9	41.6	1.49	4.51	1.80	1.74	2.29	1.07	1.07	0.850	1.20	2.86	2.06	1.13
5	2	0.105	12	4.74	0.097	17.6	48.5	1.30	3.98	1.59	1.75	2.01	0.951	0.951	0.857	1.06	2.52	1.81	1.14
5	2	0.095	13	4.32	0.088	19.7	53.8	1.18	3.65	1.46	1.76	1.84	0.875	0.875	0.861	0.968	2.31	1.65	1.14
5	2	0.083	14	3.80	0.077	23.0	61.9	1.04	3.23	1.29	1.76	1.62	0.778	0.778	0.865	0.857	2.04	1.46	1.14
4.5	3.5	0.500		21.63	0.465	4.5	6.7	6.02	14.2	6.33	1.54	8.33	9.50	5.43	1.26	6.96	20.1	11.0	1.20
4.5	3.5	0.375		17.27	0.349	7.0	9.9	4.78	12.3	5.45	1.60	6.91	8.22	4.70	1.31	5.79	16.8	8.97	1.23
4.5	3.5	0.313		14.83	0.291	9.0	12.5	4.10	10.9	4.85	1.63	6.04	7.34	4.19	1.34	5.07	14.7	7.77	1.25
4.5	3.5	0.250		12.21	0.233	12.0	16.3	3.37	9.30	4.13	1.66	5.07	6.28	3.59	1.37	4.26	12.3	6.45	1.27
4.5	3.5	0.188		9.42	0.174	17.1	22.9	2.58	7.39	3.29	1.69	3.96	5.01	2.86	1.39	3.33	9.62	4.99	1.28
4.5	3.5	0.134	10	6.89	0.125	25.0	33.0	1.90	5.59	2.48	1.72	2.95	3.80	2.17	1.42	2.49	7.15	3.68	1.30
4.5	3.5	0.120	11	6.21	0.112	28.3	37.2	1.71	5.07	2.25	1.72	2.67	3.45	1.97	1.42	2.25	6.47	3.32	1.30
4.5	3.5	0.105	12	5.45	0.097	33.1	43.4	1.49	4.46	1.98	1.73	2.34	3.04	1.74	1.43	1.97	5.66	2.90	1.31
4.5	3.5	0.095	13	4.97	0.088	36.8	48.1	1.36	4.08	1.82	1.73	2.14	2.78	1.59	1.43	1.80	5.16	2.65	1.31

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
4.5	3	0.250		11.36	0.233	9.9	16.3	3.14	8.24	3.66	1.62	4.57	4.36	2.91	1.18	3.45	9.48	5.45	1.18
4.5	3	0.188		8.78	0.174	14.2	22.9	2.41	6.58	2.92	1.65	3.59	3.50	2.34	1.21	2.71	7.44	4.23	1.20
4.5	3	0.134	10	6.44	0.125	21.0	33.0	1.77	4.99	2.22	1.68	2.68	2.67	1.78	1.23	2.03	5.55	3.14	1.21
4.5	3	0.120	11	5.80	0.112	23.8	37.2	1.60	4.53	2.02	1.68	2.43	2.43	1.62	1.23	1.84	5.02	2.83	1.22
4.5	3	0.105	12	5.09	0.097	27.9	43.4	1.39	3.99	1.77	1.69	2.13	2.14	1.43	1.24	1.61	4.40	2.48	1.22
4.5	3	0.095	13	4.65	0.088	31.1	48.1	1.27	3.66	1.62	1.70	1.94	1.97	1.31	1.24	1.47	4.02	2.26	1.22
4.5	2.5	0.250		10.51	0.233	7.7	16.3	2.91	7.18	3.19	1.57	4.07	2.83	2.26	0.987	2.69	6.84	4.46	1.10
4.5	2.5	0.188		8.15	0.174	11.4	22.9	2.24	5.77	2.56	1.61	3.21	2.30	1.84	1.01	2.13	5.42	3.48	1.12
4.5	2.5	0.134	10	5.98	0.125	17.0	33.0	1.65	4.39	1.95	1.63	2.41	1.76	1.41	1.04	1.60	4.07	2.59	1.13
4.5	2.5	0.120	11	5.40	0.112	19.3	37.2	1.49	4.00	1.78	1.64	2.18	1.61	1.29	1.04	1.45	3.69	2.34	1.13
4.5	2.5	0.105	12	4.74	0.097	22.8	43.4	1.30	3.52	1.56	1.65	1.91	1.42	1.14	1.05	1.28	3.24	2.05	1.14
4.5	2.5	0.095	13	4.32	0.088	25.4	48.1	1.18	3.23	1.43	1.65	1.75	1.31	1.04	1.05	1.17	2.96	1.87	1.14
4.5	2	0.250		9.66	0.233	5.6	16.3	2.67	6.12	2.72	1.51	3.58	1.66	1.66	0.788	1.99	4.49	3.46	1.02
4.5	2	0.188		7.51	0.174	8.5	22.9	2.06	4.95	2.20	1.55	2.83	1.37	1.37	0.814	1.59	3.61	2.73	1.03
4.5	2	0.134	10	5.53	0.125	13.0	33.0	1.52	3.79	1.69	1.58	2.13	1.06	1.06	0.836	1.21	2.74	2.04	1.05
4.5	2	0.120	11	4.99	0.112	14.9	37.2	1.37	3.46	1.54	1.59	1.93	0.973	0.973	0.842	1.10	2.49	1.85	1.05
4.5	2	0.105	12	4.38	0.097	17.6	43.4	1.20	3.05	1.36	1.60	1.70	0.863	0.863	0.848	0.965	2.19	1.62	1.06
4.5	2	0.095	13	4.00	0.088	19.7	48.1	1.09	2.80	1.24	1.60	1.55	0.794	0.794	0.852	0.884	2.01	1.48	1.06

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
4	3	0.134	10	5.98	0.125	21.0	29.0	1.65	3.76	1.88	1.51	2.25	2.41	1.61	1.21	1.85	4.68	2.78	1.13
4	3	0.120	11	5.40	0.112	23.8	32.7	1.49	3.42	1.71	1.52	2.04	2.20	1.47	1.22	1.68	4.24	2.51	1.13
4	3	0.105	12	4.74	0.097	27.9	38.2	1.30	3.01	1.51	1.52	1.79	1.94	1.29	1.22	1.47	3.72	2.19	1.14
4	3	0.095	13	4.32	0.088	31.1	42.5	1.18	2.76	1.38	1.53	1.64	1.78	1.19	1.23	1.35	3.39	2.00	1.14
4	3	0.083	14	3.80	0.077	36.0	48.9	1.04	2.45	1.22	1.53	1.45	1.58	1.05	1.23	1.19	3.00	1.76	1.14
4	2.5	0.375		13.44	0.349	4.2	8.5	3.74	6.76	3.38	1.34	4.48	3.16	2.53	0.920	3.20	7.57	5.32	0.98
4	2.5	0.134	10	5.53	0.125	17.0	29.0	1.52	3.29	1.64	1.47	2.01	1.59	1.27	1.020	1.45	3.45	2.29	1.05
4	2.5	0.125		5.18	0.116	18.6	31.5	1.42	3.09	1.54	1.47	1.88	1.49	1.19	1.030	1.36	3.23	2.14	1.05
4	2.5	0.120	11	4.99	0.112	19.3	32.7	1.37	3.00	1.50	1.48	1.82	1.45	1.16	1.030	1.32	3.13	2.07	1.05
4	2.5	0.105	12	4.38	0.097	22.8	38.2	1.20	2.64	1.32	1.48	1.60	1.28	1.03	1.030	1.16	2.75	1.82	1.06
4	2.5	0.095	13	4.00	0.088	25.4	42.5	1.09	2.43	1.21	1.49	1.46	1.18	0.943	1.040	1.06	2.52	1.66	1.06
4	2.5	0.083	14	3.52	0.077	29.5	48.9	0.96	2.15	1.08	1.50	1.29	1.05	0.837	1.040	0.939	2.22	1.46	1.06
4	2	0.165		6.13	0.152	10.2	23.3	1.67	3.30	1.65	1.40	2.09	1.11	1.11	0.814	1.28	2.76	2.15	0.96
4	2	0.134	10	5.07	0.125	13.0	29.0	1.40	2.82	1.41	1.42	1.77	0.954	0.954	0.826	1.09	2.34	1.81	0.96
4	2	0.120	11	4.58	0.112	14.9	32.7	1.26	2.57	1.29	1.43	1.61	0.873	0.873	0.832	0.991	2.13	1.64	0.97
4	2	0.105	12	4.03	0.097	17.6	38.2	1.10	2.27	1.14	1.44	1.41	0.775	0.775	0.839	0.873	1.87	1.44	0.97
4	2	0.095	13	3.68	0.088	19.7	42.5	1.01	2.09	1.04	1.44	1.29	0.714	0.714	0.843	0.800	1.72	1.31	0.97
4	2	0.083	14	3.24	0.077	23.0	48.9	0.89	1.86	0.928	1.45	1.14	0.636	0.636	0.848	0.708	1.52	1.16	0.98

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
4	1.5	0.250		7.96	0.233	3.4	14.2	2.21	3.66	1.83	1.29	2.50	0.730	0.974	0.575	1.21	2.14	2.18	0.85
4	1.5	0.188		6.23	0.174	5.6	20.0	1.71	3.02	1.51	1.33	2.01	0.620	0.826	0.601	0.982	1.78	1.75	0.87
4	1.5	0.165		5.57	0.152	6.9	23.3	1.52	2.74	1.37	1.34	1.80	0.567	0.756	0.611	0.885	1.61	1.56	0.87
4	1.5	0.125		4.33	0.116	9.9	31.5	1.19	2.21	1.11	1.36	1.43	0.467	0.622	0.627	0.710	1.30	1.24	0.88
4	1.5	0.120	11	4.17	0.112	10.4	32.7	1.15	2.15	1.07	1.37	1.39	0.454	0.606	0.629	0.689	1.26	1.20	0.88
4	1.5	0.083		2.95	0.077	16.5	48.9	0.81	1.56	0.779	1.39	0.992	0.335	0.447	0.644	0.497	0.911	0.858	0.89
3.5	3	0.250		9.66	0.233	9.9	12.0	2.67	4.41	2.52	1.29	3.12	3.47	2.31	1.14	2.80	6.49	4.16	1.02
3.5	3	0.188		7.51	0.174	14.2	17.1	2.06	3.57	2.04	1.32	2.47	2.81	1.87	1.17	2.22	5.12	3.25	1.03
3.5	3	0.134	10	5.53	0.125	21.0	25.0	1.52	2.73	1.56	1.34	1.86	2.15	1.44	1.19	1.67	3.84	2.42	1.05
3.5	3	0.120	11	4.97	0.112	23.8	28.3	1.37	2.49	1.42	1.35	1.68	1.96	1.31	1.20	1.52	3.48	2.19	1.05
3.5	3	0.105	12	4.38	0.097	27.9	33.1	1.20	2.20	1.26	1.35	1.48	1.74	1.16	1.20	1.33	3.05	1.91	1.06
3.5	3	0.095	13	4.00	0.088	31.1	36.8	1.09	2.02	1.15	1.36	1.35	1.59	1.06	1.21	1.22	2.79	1.75	1.06
3.5	2.5	0.165		6.13	0.153	13.3	19.9	1.68	2.80	1.60	1.29	1.96	1.66	1.33	0.992	1.55	3.40	2.39	0.96
3.5	2.5	0.134	10	5.07	0.125	17.0	25.0	1.40	2.38	1.36	1.30	1.65	1.41	1.13	1.01	1.31	2.85	2.00	0.96
3.5	2.5	0.120	11	4.58	0.112	19.3	28.3	1.26	2.17	1.24	1.31	1.49	1.29	1.03	1.01	1.19	2.59	1.81	0.97
3.5	2.5	0.105	12	4.03	0.097	22.8	33.1	1.10	1.92	1.09	1.32	1.31	1.14	0.914	1.02	1.04	2.27	1.58	0.97
3.5	2.5	0.095	13	3.68	0.088	25.4	36.8	1.01	1.76	1.01	1.32	1.20	1.05	0.840	1.02	0.956	2.08	1.45	0.97
3.5	2.5	0.075		2.93	0.069	33.2	47.7	0.80	1.42	0.809	1.33	0.961	0.847	0.677	1.03	0.764	1.66	1.15	0.98

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
3.5	2	0.250		7.96	0.233	5.6	12.0	2.21	3.17	1.81	1.20	2.36	1.29	1.29	0.766	1.58	3.16	2.64	0.85
3.5	2	0.188		6.23	0.174	8.5	17.1	1.71	2.61	1.49	1.23	1.89	1.08	1.08	0.792	1.27	2.55	2.09	0.87
3.5	2	0.134	10	4.61	0.125	13.0	25.0	1.27	2.02	1.15	1.26	1.43	0.844	0.844	0.814	0.972	1.95	1.57	0.88
3.5	2	0.125		4.33	0.116	14.2	27.2	1.19	1.90	1.09	1.26	1.34	0.795	0.795	0.818	0.912	1.83	1.47	0.88
3.5	2	0.120	11	4.17	0.112	14.9	28.3	1.15	1.85	1.05	1.27	1.30	0.773	0.773	0.820	0.885	1.77	1.43	0.88
3.5	2	0.105	12	3.67	0.097	17.6	33.1	1.01	1.64	0.934	1.28	1.15	0.687	0.687	0.827	0.780	1.56	1.25	0.89
3.5	2	0.095	13	3.35	0.088	19.7	36.8	0.92	1.50	0.859	1.28	1.05	0.633	0.633	0.831	0.716	1.43	1.15	0.89
3.5	2	0.083	14	2.95	0.077	23.0	42.5	0.81	1.34	0.764	1.29	0.932	0.564	0.564	0.836	0.634	1.27	1.01	0.89
3.5	1.5	0.250		7.11	0.233	3.4	12.0	1.97	2.55	1.46	1.14	1.98	0.636	0.848	0.568	1.06	1.79	1.88	0.77
3.5	1.5	0.188		5.59	0.174	5.6	17.1	1.54	2.12	1.21	1.17	1.60	0.543	0.724	0.594	0.867	1.49	1.51	0.78
3.5	1.5	0.165		5.01	0.153	6.8	19.9	1.38	1.94	1.11	1.19	1.44	0.500	0.667	0.603	0.787	1.36	1.37	0.79
3.5	1.5	0.134	10	4.16	0.125	9.0	25.0	1.15	1.66	0.951	1.20	1.22	0.434	0.579	0.615	0.670	1.16	1.15	0.80
3.5	1.5	0.125		3.90	0.116	9.9	27.2	1.07	1.57	0.896	1.21	1.15	0.411	0.548	0.619	0.630	1.09	1.08	0.80
3.5	1.5	0.120	11	3.76	0.112	10.4	28.3	1.04	1.52	0.871	1.21	1.11	0.400	0.533	0.621	0.612	1.06	1.05	0.80
3.5	1.5	0.105	12	3.31	0.097	12.5	33.1	0.91	1.35	0.774	1.22	0.983	0.358	0.477	0.628	0.541	0.938	0.923	0.81
3.5	1.5	0.095	13	3.03	0.088	14.0	36.8	0.83	1.25	0.713	1.23	0.902	0.331	0.441	0.632	0.497	0.862	0.845	0.81
3	2.5	0.134	10	4.61	0.125	17.0	21.0	1.27	1.64	1.09	1.13	1.31	1.24	0.988	0.985	1.16	2.27	1.70	0.88
3	2.5	0.120	11	4.17	0.112	19.3	23.8	1.15	1.50	1.00	1.14	1.19	1.13	0.904	0.991	1.05	2.06	1.54	0.88
3	2.5	0.105	12	3.67	0.097	22.8	27.9	1.01	1.33	0.884	1.15	1.05	1.00	0.802	0.999	0.927	1.81	1.35	0.89
3	2.5	0.095	13	3.35	0.088	25.4	31.1	0.92	1.22	0.813	1.15	0.962	0.922	0.738	1.00	0.850	1.66	1.23	0.89

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
3	2	0.165		5.01	0.153	10.1	16.6	1.38	1.61	1.07	1.08	1.34	0.852	0.852	0.787	1.01	1.85	1.60	0.79
3	2	0.134	10	4.16	0.125	13.0	21.0	1.15	1.38	0.920	1.10	1.13	0.733	0.733	0.800	0.855	1.57	1.34	0.80
3	2	0.120	11	3.76	0.112	14.9	23.8	1.04	1.26	0.842	1.10	1.03	0.673	0.673	0.806	0.779	1.43	1.22	0.80
3	2	0.105	12	3.31	0.097	17.6	27.9	0.91	1.12	0.748	1.11	0.909	0.599	0.599	0.812	0.688	1.26	1.07	0.81
3	2	0.095	13	3.03	0.088	19.7	31.1	0.83	1.03	0.689	1.12	0.834	0.553	0.553	0.816	0.632	1.15	0.977	0.81
3	2	0.083	14	2.67	0.077	23.0	36.0	0.73	0.920	0.613	1.12	0.739	0.493	0.493	0.821	0.560	1.02	0.864	0.81
3	1.5	0.165		4.44	0.153	6.8	16.6	1.22	1.30	0.866	1.03	1.12	0.430	0.574	0.593	0.684	1.10	1.16	0.71
3	1.5	0.134	10	3.70	0.125	9.0	21.0	1.02	1.12	0.747	1.05	0.952	0.375	0.500	0.606	0.584	0.941	0.981	0.71
3	1.5	0.120	11	3.35	0.112	10.4	23.8	0.93	1.03	0.686	1.05	0.869	0.346	0.461	0.611	0.534	0.861	0.892	0.72
3	1.5	0.105	12	2.96	0.097	12.5	27.9	0.81	0.917	0.612	1.06	0.768	0.310	0.413	0.618	0.473	0.763	0.787	0.72
3	1.5	0.095	13	2.71	0.088	14.0	31.1	0.74	0.846	0.564	1.07	0.706	0.287	0.382	0.622	0.435	0.702	0.721	0.72
3	1.5	0.083	14	2.39	0.077	16.5	36.0	0.65	0.756	0.504	1.07	0.627	0.257	0.343	0.627	0.387	0.624	0.639	0.73
3	1	0.250		5.41	0.233	1.3	9.9	1.51	1.23	0.820	0.903	1.19	0.189	0.379	0.355	0.506	0.586	0.940	0.60
3	1	0.165		3.88	0.153	3.5	16.6	1.07	0.989	0.659	0.961	0.902	0.162	0.323	0.389	0.397	0.490	0.724	0.62
3	1	0.083	14	2.11	0.077	10.0	36.0	0.58	0.591	0.394	1.01	0.514	0.103	0.206	0.422	0.233	0.297	0.414	0.64
2.5	2	0.250		6.26	0.233	5.6	7.7	1.74	1.33	1.06	0.873	1.37	0.928	0.928	0.730	1.17	1.90	1.82	0.68
2.5	2	0.188		4.96	0.174	8.5	11.4	1.37	1.12	0.893	0.904	1.12	0.785	0.785	0.758	0.956	1.55	1.46	0.70
2.5	2	0.165		4.44	0.153	10.1	13.3	1.22	1.02	0.819	0.915	1.01	0.721	0.721	0.768	0.867	1.41	1.31	0.71
2.5	2	0.134	10	3.70	0.125	13.0	17.0	1.02	0.883	0.706	0.929	0.861	0.623	0.623	0.781	0.738	1.20	1.11	0.71
2.5	2	0.125		3.48	0.116	14.2	18.6	0.96	0.833	0.666	0.934	0.809	0.589	0.589	0.785	0.694	1.12	1.04	0.72
2.5	2	0.120	11	3.35	0.112	14.9	19.3	0.93	0.810	0.648	0.936	0.785	0.573	0.573	0.787	0.674	1.09	1.00	0.72

DIMENSIONS AND SECTION PROPERTIES OF RECTANGULAR HSS

Nominal Size				Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area per Foot
									Ix	Sx	rx	Zx	Iy	Sy	ry	Zy			
in.	in.	in.	GA	lb.	in.			in.2	in.4	in.3	in.	in.3	in.4	in.3	in.	in.3	in.4	in.3	ft.2
2.5	2	0.105	12	2.96	0.097	17.6	22.8	0.81	0.722	0.578	0.943	0.694	0.511	0.511	0.794	0.596	0.963	0.884	0.72
2.5	2	0.095	13	2.71	0.088	19.7	25.4	0.74	0.666	0.533	0.948	0.638	0.472	0.472	0.798	0.547	0.883	0.809	0.72
2.5	2	0.083	14	2.39	0.077	23.0	29.5	0.65	0.595	0.476	0.954	0.566	0.422	0.422	0.803	0.486	0.783	0.716	0.73
2.5	1.5	0.165		3.88	0.153	6.8	13.3	1.07	0.813	0.650	0.871	0.833	0.361	0.481	0.581	0.581	0.850	0.954	0.62
2.5	1.5	0.134	10	3.25	0.125	9.0	17.0	0.90	0.706	0.565	0.887	0.712	0.316	0.421	0.593	0.498	0.729	0.809	0.63
2.5	1.5	0.120	11	2.94	0.112	10.4	19.3	0.81	0.651	0.521	0.894	0.652	0.292	0.389	0.599	0.456	0.668	0.737	0.63
2.5	1.5	0.105	12	2.60	0.097	12.5	22.8	0.71	0.582	0.465	0.903	0.578	0.262	0.349	0.606	0.405	0.593	0.651	0.64
2.5	1.5	0.095	13	2.38	0.088	14.0	25.4	0.65	0.538	0.430	0.908	0.531	0.243	0.324	0.610	0.373	0.545	0.597	0.64
2.5	1.5	0.083	14	2.11	0.077	16.5	29.5	0.58	0.482	0.385	0.914	0.473	0.218	0.291	0.615	0.332	0.485	0.529	0.64
2.5	1	0.188		3.68	0.174	2.7	11.4	1.02	0.645	0.516	0.796	0.713	0.142	0.284	0.373	0.360	0.412	0.648	0.53
2.5	1	0.125		2.63	0.116	5.6	18.6	0.72	0.503	0.403	0.834	0.532	0.115	0.230	0.398	0.274	0.322	0.483	0.55
2.25	2	0.188		4.64	0.174	8.5	9.9	1.28	0.858	0.763	0.819	0.952	0.713	0.713	0.746	0.877	1.32	1.30	0.66
2.25	2	0.125		3.27	0.116	14.2	16.4	0.90	0.646	0.574	0.848	0.693	0.538	0.538	0.774	0.639	0.957	0.927	0.68
2	1.5	0.165		3.32	0.153	6.8	10.1	0.92	0.460	0.460	0.708	0.585	0.291	0.388	0.563	0.478	0.609	0.747	0.54
2	1	0.165		2.76	0.153	3.5	10.1	0.76	0.329	0.329	0.656	0.444	0.106	0.212	0.373	0.268	0.283	0.465	0.46
2	1	0.120	11	2.13	0.112	5.9	14.9	0.59	0.273	0.273	0.681	0.356	0.090	0.180	0.391	0.217	0.232	0.370	0.47
2	1	0.100		1.82	0.093	7.8	18.5	0.50	0.240	0.240	0.692	0.308	0.080	0.160	0.399	0.189	0.203	0.319	0.47
2	1	0.083	14	1.54	0.077	10.0	23.0	0.42	0.208	0.208	0.702	0.264	0.070	0.140	0.407	0.162	0.174	0.272	0.48

2.375	0.109	2.64	0.101	23.5	0.72	0.467	0.394	0.805	0.523	0.935	0.787	0.62
2.25	0.250	5.35	0.233	9.7	1.48	0.761	0.676	0.718	0.952	1.52	1.35	0.59
				12.9	1.13	0.616	0.547	0.737	0.752	1.23	1.09	0.59
				19.4	0.78	0.444	0.395	0.756	0.529	0.888	0.789	0.59

Sak Coat
Sak Powder Coatings

Modern Sak Factory for Powder Paint

CERTIFICATE OF CONFORMITY

Steel Tube Institute Brochure: Dimensions And Section Properties ASTM A500

Product Code: SCHB 9005 TL	**Type of Product:** Epoxy Polyester
Color: RAL 9005	**Lot Number:** 23004935
Dated: 19th Sep,2023	**Customer:** XYZ

Properties

SLNO:	Test	Ref. Standard	Result
1	Curing Schedule		200°C/10min
2	Gloss Level @ 60degree	ISO-2813	Visual
3	Coating Thickness	ISO-2178	70 - 90µ
4	Impact Test Direct	ISO-6272	20Kg/cm
5	Impact Test Indirect	ISO-6272	20Kg/cm
6	Adhesion Test	ISO-2409	Gt=0
7	Conical Mandrel	ISO-6860	3mm
8	Pencil Hardness	ASTM: D3363-00	NA
9	Specific Gravity		1.5 ± 0.2

	Particle Size	32u	63u	80u	100u	125u	150u
10	Alpine Sieve Oversize	67	14	-	-	0	0
11	Alpine Sieve Under size	33	86	-	-	100	100

Shelf Life : 12 months from date of production

Product is tested on 0.8 mm thick degreased cold rolled steel panels

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Sak Coat
Powder Coating

مصنع ساك الحديثة دهانات بودرا
Modern Sak Factory for Powder Paint

PRODUCT DATA SHEET

EPOXY POLYESTER – HB – SERIES

Product Description: SAK **Epoxy Polyester Series** is a versatile **Epoxy Polyester hybrid** powder coatings developed to provide attractive decorative finishes with protective and functional properties. Titan Epoxy Polyester series offer excellent mechanical and chemical performance with superior flow and finish. It provides good color stability during curing. Epoxy – Polyester hybrid coatings are discolored for applications where resistance to UV light is a prerequisite.

SAK Pure Epoxy Powders are available in a wide range of colours including RAL, IS Shades in Gloss, Satin and Matt finishes. Other products like Structure, Texture & Metallic Finishes are also available

---

Powder Application: Electrostatic Powder Spray – 40 to 100 KV (Kilovolt)

SAK Pure Epoxy powder Paint can be applied by automatic Electrostatic corona and Tribo static spray equipment. Unused powder can be reclaimed using suitable equipments and recycled through the coating systems.

SAK Metallic Powder Paint can be applied by or automatic Electrostatic corona spray equipment. However different electrostatic gun type may exert different charging characteristics and hence affects appearance. Also due to the nature of the product care should be taken, by means of spray outs, to ensure that reclaimed powder has good color and gloss uniformity as well as consistency of 'SPARKLE' when compared to original virgin material.

Application Areas: SAK Epoxy-Polyester series is recommended for interior application. It features a large spectrum of finishes and Gloss levels. Typical application areas are Domestic Appliances, Indoor Metal Furniture's and Fixtures, Lighting Equipments, Laboratory Furniture's, Machine Components, Trays & Kitchenware's and hand tools.

Pre-treatment: Substrate should be free of grease, oil, dirt, fingerprints, and drawing compounds, any contamination and surface preparation treatment to ensure optimum adhesion and coating performance properties. The use of a chemical conversion coating prior to the application of a powder coating is strongly recommended i.e. Iron Phosphate / Low Wt. Zinc Phosphate.

The recommended types of pre-treatments for the the most frequently used substrates are:

Aluminum:	Chromate conversion
Steel:	Zinc Phosphate
Zinc coated steel:	Zinc Phosphate or Chromate conversion

Sak Coat
Powder Coating

مصنع ساك الحديثة دهانات بودرا
Modern Sak Factory for Powder Paint

EPOXY POLYESTER – HB – SERIES

Powder Properties:

Chemical Type	:	**Epoxy Polyester**		
Gloss @ 60° (ASTM D-523)	:	Glossy Finish	-	80 (+/-) 10 Units
		Semi-glossy Finish	-	70 (+/-) 10 Units
		Satin Finish	-	40 (+/-) 10 Units
		Matt Finish	-	20 (+/-) 10 Units
		Dead Matt Finish	-	5 (+/-) 5 Units
Particle Size	:	Suitable for Tribo and Corona application		
Specific Gravity	:	1.2 – 1.8 (Depending upon the colour & Finish)		
Theoretical Coverage	:	6 – 12 sq. meters per kg (Coverage depends upon the Dry Film Thickness, Sp. Gravity, Specifications, % Application Efficiency & Product Mix)		
Storage	:	Dry cool condition below 25°C temp.6 month to over 1 year. When not in use store powder in sealed condition; fine powders are hygroscopic in nature		
Curing Schedule(Object Temp.):		190 °C / 10 Min **(or)** 200 °C / 10Min.		
Film Thickness	:	For Plane Finish	:-	50 - 70 micron
		For Structure Finish	:-	70 – 100 micron

Powder Performance Test:

• Impact Resistance	(ASTM D 2794)	-	100 kg.cm passes (No surface defect on substrate)
• Flexibility	(ASTM D 552)	-	4mm passes (No surface defect on substrate)
• Adhesion	(ASTM D 3359)	-	GT – '0' passes (2 mm square)
• Pencil Hardness	(ASTM D 3363)	-	H TO 2H (No pencil marks)

Powder chemical Test:

• 5 % Salt Spray	(ASTM B117-3)	-	min.500 hrs. No face rust, 3mm creep-age from Scribe & dot rust
• Water Immersion	(ASTM D870)	-	Min. 500 hrs. No blistering or other failures @45 °C
• Exterior Durability		-	Excellent.
• Over Baking Stability		-	One More Pass (Delta E < 1)

EPOXY POLYESTER – HB – SERIES

Material Safety: A material Safety Data Sheet of the product is available on request. Minimum safety precautions in dealing with all powder coatings are as follows. All dusts are respiratory irritant. Therefore, inhalation of the dust or of the vapors resulting from the cure should be avoided. Take step to prevent skin contact, but should contact occur, wash skin with soap and water. In case of eye contact flush immediately with clean water and seek medical advice. Dust clouds of any finely divided material can be ignited with an electric spark or open flame so avoids building up on surfaces. All equipment should be electrically earthed to prevent build up of static.

Note -

Product Data Sheet is periodically updated to reflect new information relating to the product. It is important that the customer obtain the most recent Product Data Sheet for the product being used. The information, rating and opinions stated above pertain to the material currently offered and represent the result of test believed to be reliable. However due to variation in customer handling and methods of application, which are not known or under our control. The SAK Coats Company cannot make any warranties or guaranties as to the end results

Modern SAK Factory For Powder Paint, ***Tel.*** *00966 -1- 8102849* ***E-mail*** – hilal@sakcoat.com

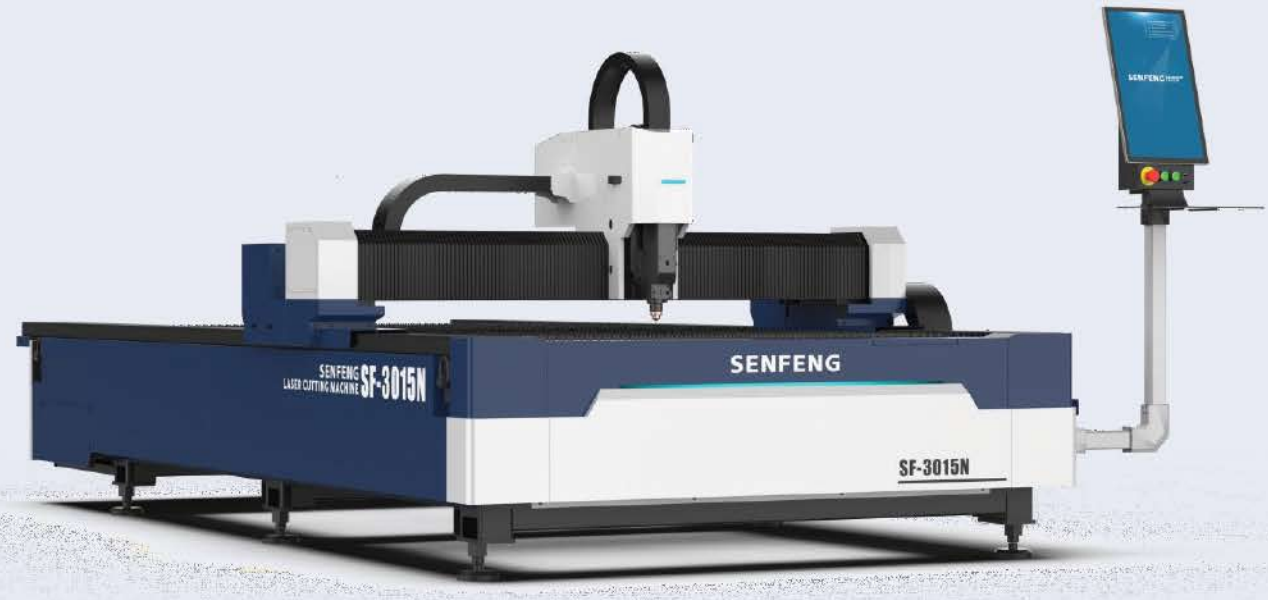
Machines

www.7thd.net

SF3015N

Laser Cutting Machine

- High-strength hollow machine bed
- High-strength aluminum alloy beam
- Fully automatic focus
- Intelligent following system



※The picture is for reference only, the actual appearance and size shall prevail

TECHNICAL PARAMETERS

TECHNICAL PARAMETERS (SF3015N)

Items	Parameters
	3kW
Work area	3000*1500mm
X-axis travel	1530mm
Y-axis travel	3050mm
Z-axis travel	100mm
X/Y-axis positioning accuracy	±0.05mm
X/Y-axis repeated positioning accuracy	±0.02mm
Maximum speed	100m/min
Maximum acceleration	1G
Total weight(KG)	1830
Dimensions (length x width x height)	4360*2760*1800mm
Phase	Three-phase
Power supply rated voltage	380V
Frequency	50Hz
Total power supply protection level	IP54

Note: 1. The accuracy of the workpiece depends on factors such as the type of workpiece, pre-treatment conditions, sheet size, and position within the working area.

2. Also, technical specifications are subject to change without prior notice and the actual order agreement shall prevail.

CUTTING PARAMETERS

CUTTING PARAMETERS (SF3015N)

Materials	Thickness (mm)	3kW	Gas
		Cutting Speed (m/min)	
Stainless steel	1	30-45	N2/Air
	2	20-25	N2/Air
	3	8.0- 10	N2/Air
	4	5.0-6.0	N2/Air
	5	3.0-3.6	N2/Air
	6	2.0-3.0	N2/Air
	8	1.0-1.5	N2/Air
Carbon steel	1	30-40	
	2	15- 20	
	3	3.5-4.5	
	4	3.0-3.5	
	6	2.5-3.5	O2
	8	1.8-2.3	O2
	10	1.4-1.8	O2
	12	1.0- 1.4	O2
	14	0.8- 1.0	O2
	16	0.7- 1.1	O2
	18	0.5-0.7	O2

Note: 1. The cutting parameter table is for reference only and the actual cutting materials will prevail due to differences in carbon content.
2. The dark areas cannot be processed as a full sheet and are only suitable for sample cutting. Please be aware of this.

CONFIGURATION LIST

CONFIGURATION LIST (SF3015N)

No.	Items	Quantity	Brands
	Laser source		
1	Laser source	1	MAX
	Laser cutting head		
1	Laser cutting head	1	RAYTOOLS
	Machine tool · Host		
1	Transmission system	4	Taiwan LAPPING \senfeng
2	Machine tool and accessories	1	SENFENG
3	Reducer	3	France MOTOREDUCER
4	Electrical and pneumatic systems	1	French SCHNEIDER Japan SMC&Taiwan AIRTAC
5	AC servo motor and driver	4	Fuji Japan
6	Water chiller	1	HANLI
	CNC control system		
1	CNC control system	1	\CYPCUT

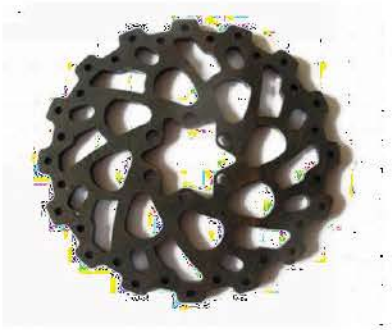
Note:

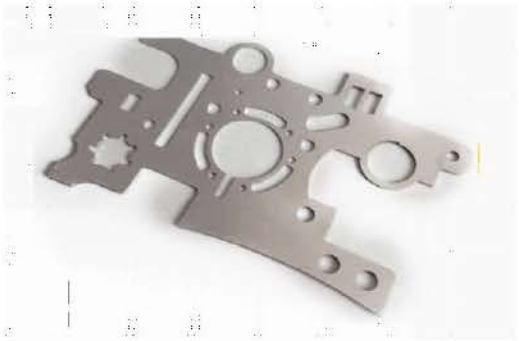
This is the optimal configuration verified by our company. If you change the brand or configuration, it may cause irreversible effects. Please be aware of this.

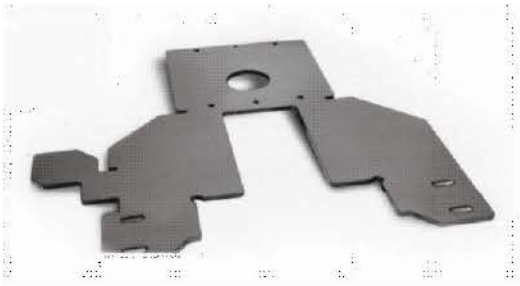
The warranty period for the entire machine (excluding consumables, force majeure natural disasters, wars and violations, human damage, and other reasons) is 1 year.

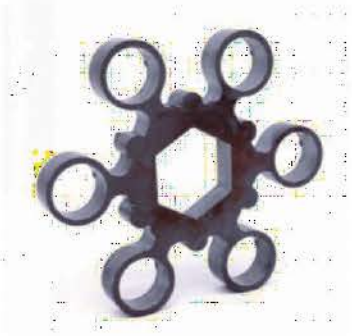
CUTTING SAMPLES

CUTTING SAMPLES (SF3015N)









LASER DEVICE

SF3015N-LASER SOURCE

1. High electro-optical conversion efficiency
2. High output power and superior beam quality
3. High power stability, high reliability and long life
4. All-fiber compact structure, maintenance-free and low cost

MACHINE BED SYSTEM

SF3015N- MACHINE BED SYSTEM

Machine bed with pipe welding structure

Durable and non-deformable

Technology

The reinforced welding bed is designed based on high-speed motion and undergoes aging treatment to ensure its accuracy and stability in long-term operation.

Core

After annealing to eliminate internal stress, the equipment undergoes secondary vibration, aging treatment and fine machining.

Feature

The semi-hollow bed structure reduces thermal deformation, resulting in long service life and high cutting accuracy.

High-strength aluminum alloy beam

Core

Equipped with high-strength aluminum alloy beam which is light in weight and has good dynamic performance.

Feature

It is rough machined after annealing to eliminate internal stress, and then finished after secondary vibration aging treatment, ensuring the overall strength and stability of the beam.

The Whole Structure of Press Brake:

Totally European design, streamlined looking

Taking off inner-stress of welded parts by tempering, good stability

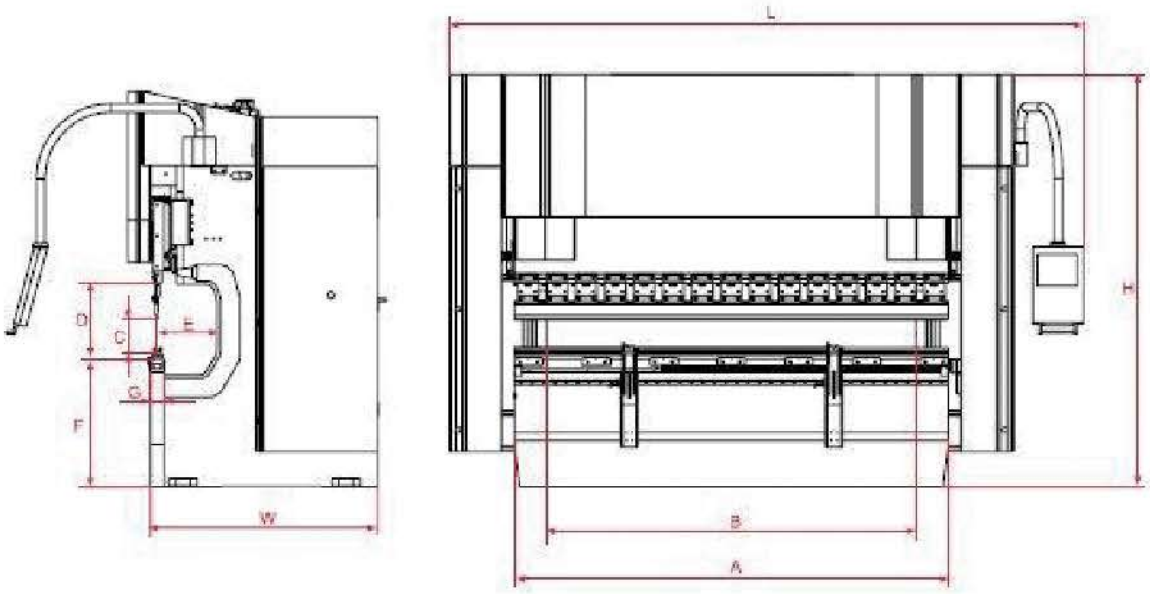
Remove rust with sand-blast and coated with anti-rust paint

Adopt Spanish pentahedron machine center, once clamping can finish all working surfaces which will guarantee dimension precision and position precision.

The design of the machine frame is a critical part of any machine with relation to its ability to produce accurate parts for a long period of time.

Frames, assembly surfaces and connection holes are machined after the welding process, up to 60' in a single pass.

Supplying three front sheet supports , Finish of Nippon Polyurethane paint.



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Supplying three front sheet supports , Finish of Nippon Polyurethane paint

2) Ram structure:

Upper stroke design for bending, low noise, stable operating situation , Parallel tolerance of Y1 and Y2 is 0.01mm

Y1,Y2 can be programmed separately can work under non-balance load, can bend cone-shape work piece

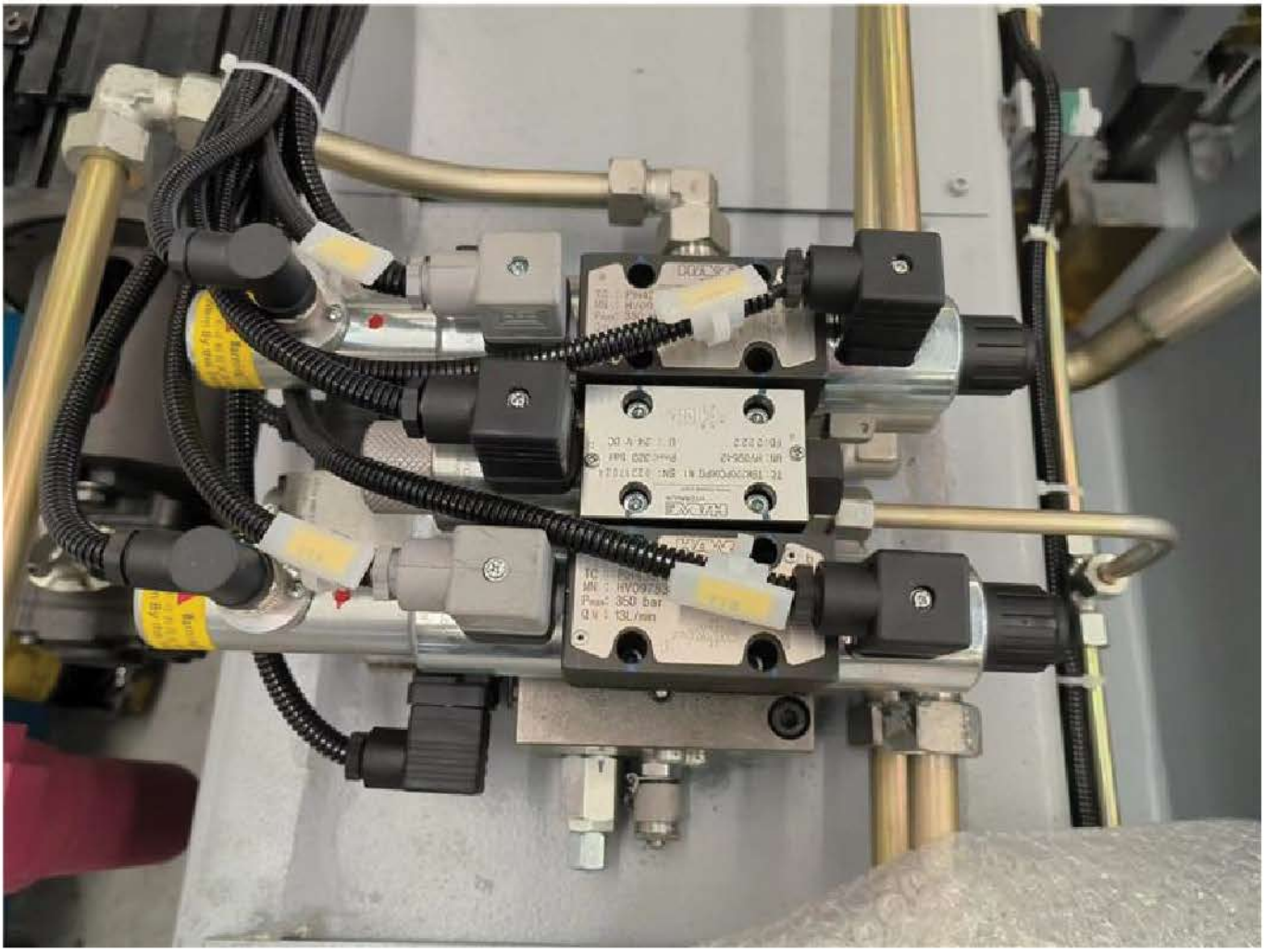
At bottom dead center a pressure-keeping time is offered, and can be programmed to assure precision of all kinds of work piece. Can move the ram up slowly, which allows the operator to control work piece conveniently Universal fixing-surface of the upper tool can be meeting with the clamping requirement of the tool farthest!

3) Hydraulic system:

Close loop electro-hydraulic synchronized servo-control system, the most advanced

Primapress

Hydraulic system is from Rexroth, Germany, a full loop electric-hydraulic proportional servo control, Sumitomo oil pump, Japan.
Imported linear optical reader, guiding system, positioning system and hydraulic balancing system with high precision, which all can permit the processing work piece of full length or with eccentric.
An outfit with "C" is at throat, as deformation compensation on throat, directly measuring the distance between upper tool and low die, assuring the precision of work piece.
All seals in cylinder is imported, the most famous brand, good quality and high performance
Overload overflow protection is outfitted to hydraulic system, which can assure no leakage, and the oil level can be read or seen directly
Being able to work under rated load continuously, stable working and high precision

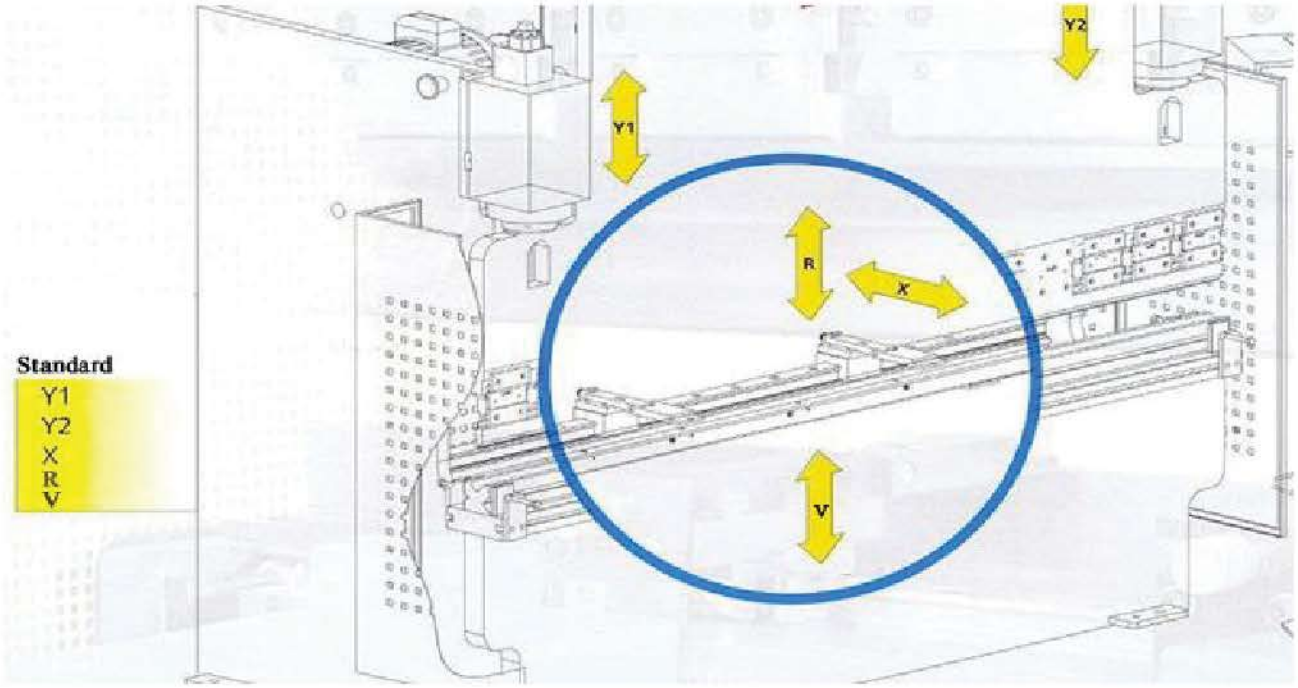


4) CNC Back gauge:

Close loop electro-hydraulic synchronized servo-control system,the most advanced
Good for work piece needing multiple steps of bending with high precision requirement.
X is moved with ball screw,guided by linear guide,and driven by digital AC servo-motor.
Back gauge has well enough mechanical strength and rigidity with tank-type gauge structure.

Primapress

Two fingers are moving alone swallow guide,operate easily with high precision
Particular finger-stop design,enlarge the range of back gauge.



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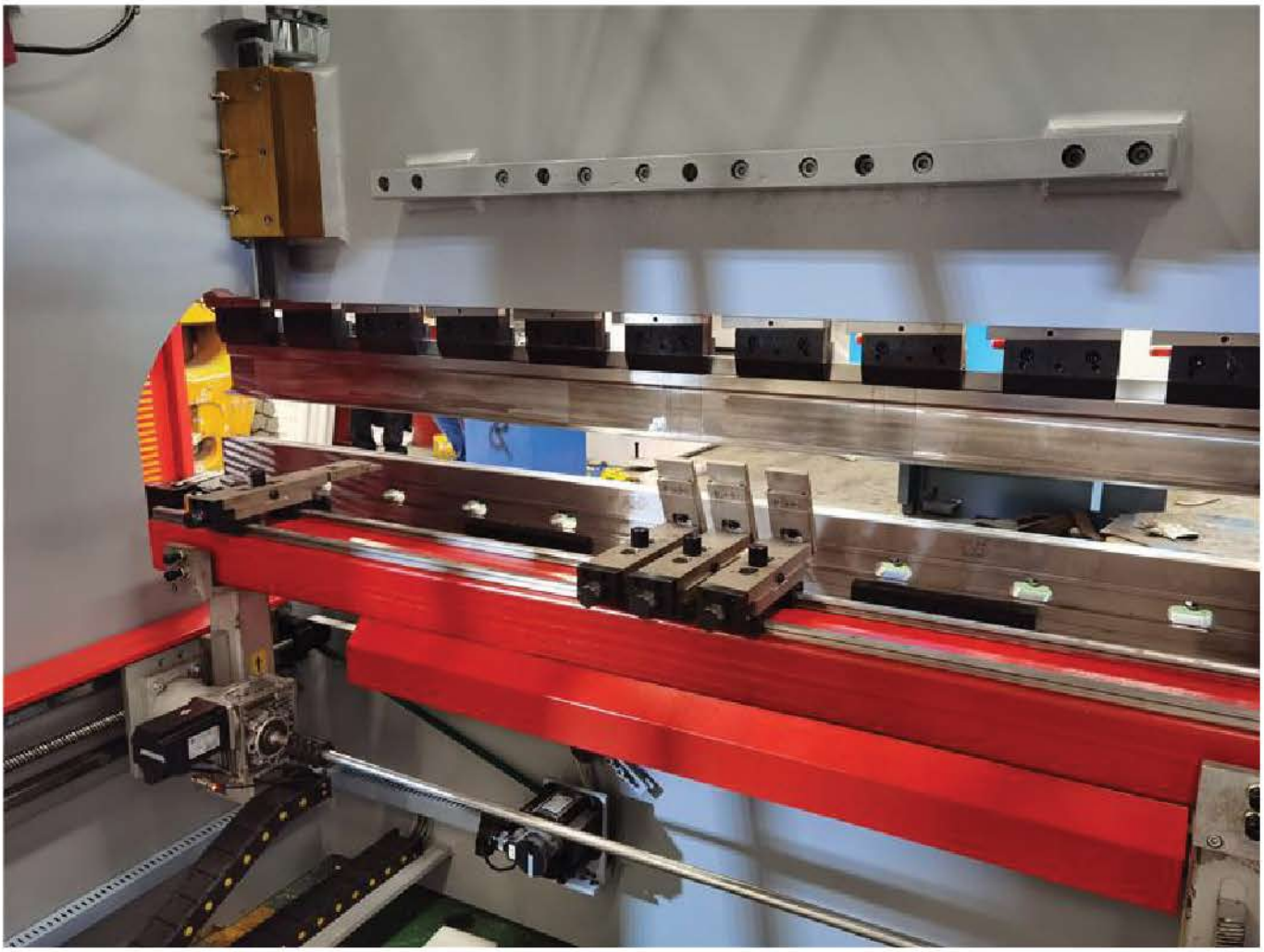


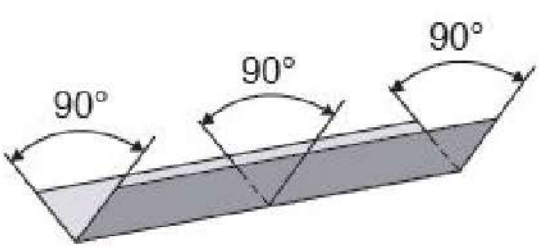
5) Electrical system, SCHNEIDER Electrical:

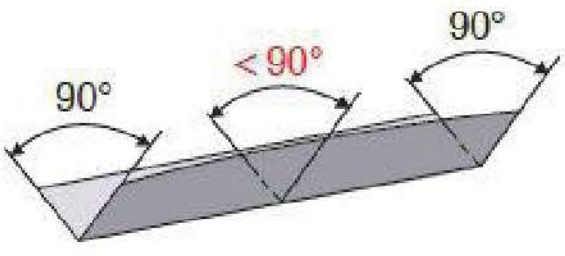
Electrical components are imported or from Sino-foreign joint Venture,in accordance with international standards,reliable safety,long life,good anti-interference ability,a radiation unit is fitted in electrical cabinet. Having a movable single-hand pedal switch with emergency stop,easy to operate.

6) Crowning compensation, To avoid right conditions:

Low worktable has an automatic crowning compensation uint; compensation amount is automatically set up by CNC system, with guarantee a same bending angel on full length.

The worktable adopts the particular design, reducing the crowning distortion amount of lower tool effectively.





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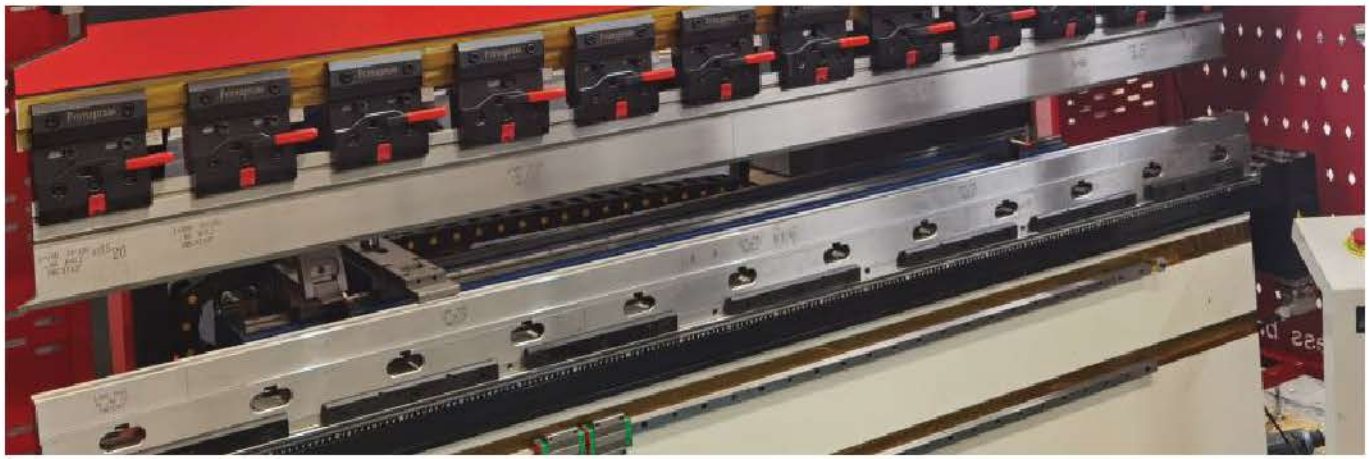
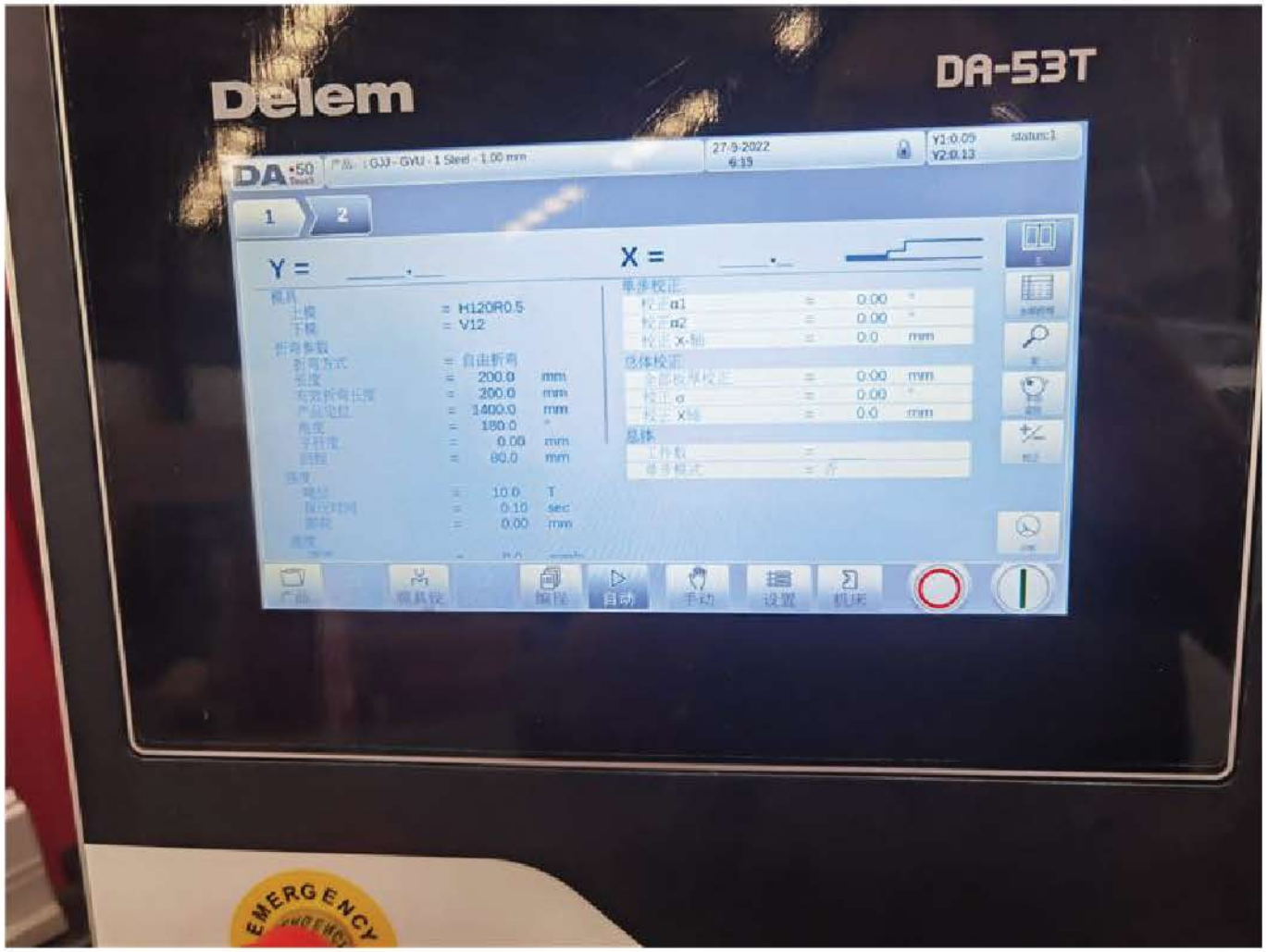
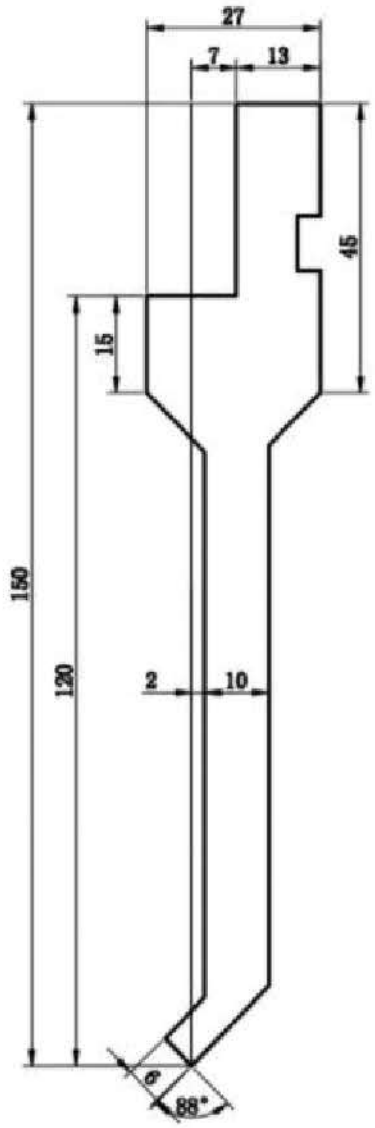
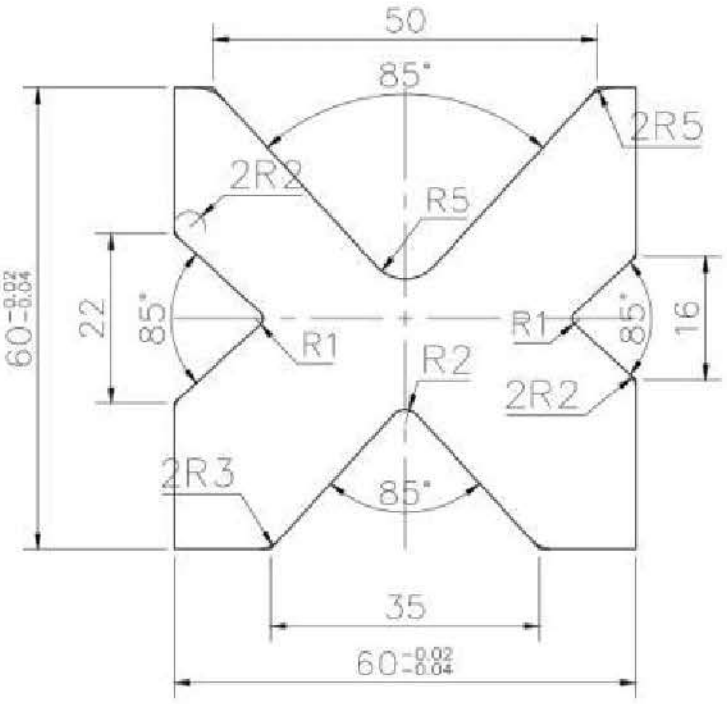




Standard Multi-V die, optional Single V die.
Manufacturer standard tooling with the machine.

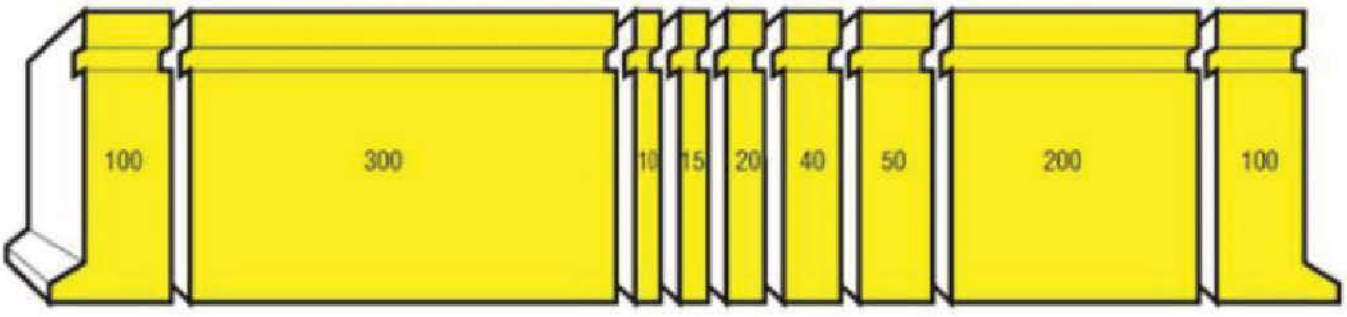




技术要求

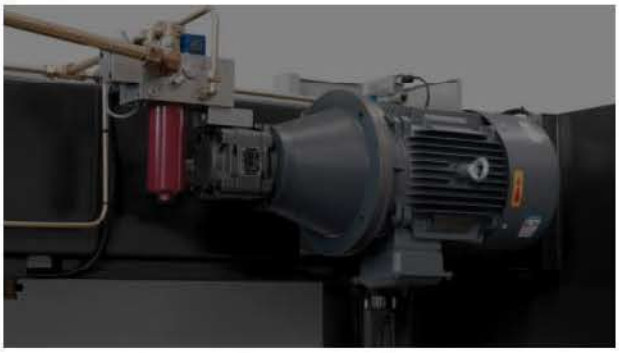
1. 材质：42CrMo;
2. 热处理：HRC48±2°

The standard punch and die. 835mm segmented as standard.



Primapress

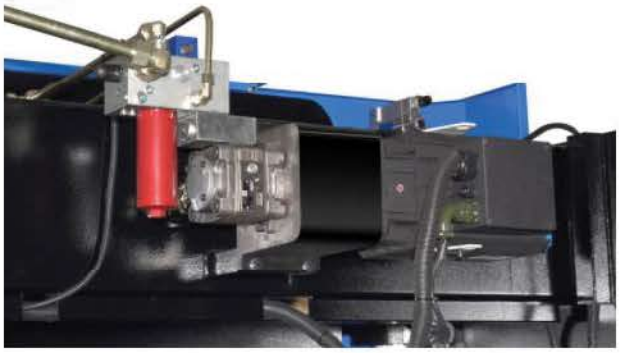
SPB (Hydraulic system V2.0)



- The AC motor is used as the main power source of the oil pump.
- Well-known brand motors, oil pumps, and hydraulic valves.

Get a Free Quote

SVP (Hydraulic system V2.1)



- Using servo motor as the main power source of hydraulic pump can save about 40% energy
- The overall efficiency of the slider increases by about 7-20%
- Oil temperature can be reduced by about 10-20 ℃

Get a Free Quote

40%

Power saving

ESVP (Hydraulic system V3.0)

- High efficiency and energy saving, oil tank capacity reduced by 70%
- Fast-performance and duty cycle reduction 10%
- Compared with the traditional system,energy efficiency 50% up
- The positioning accuracy of precision-up to 5μm Integrated servo pump
- Lower-noise at work integrated pressure filters ensures high stability and long service life

Get a Free Quote

50%

Power saving

Primapress

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Handrails

Handrails

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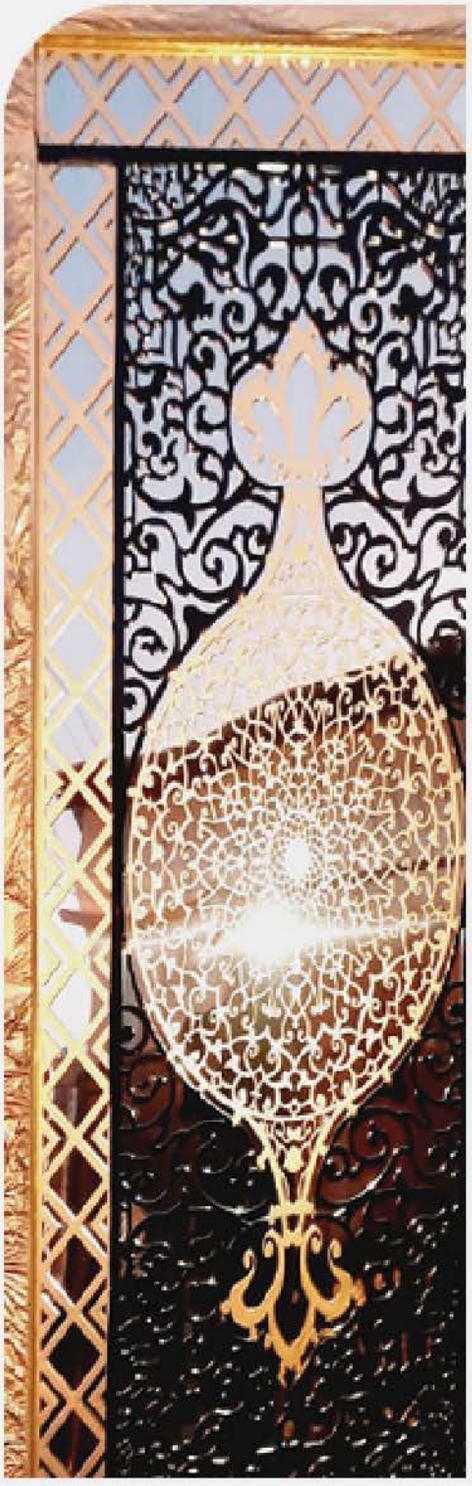
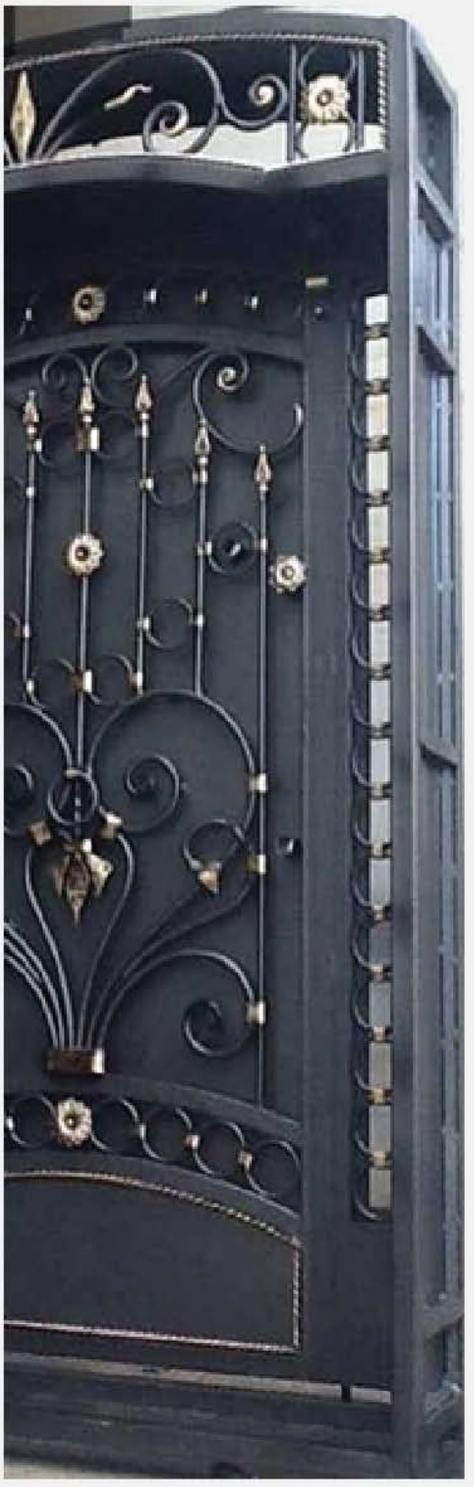
Doors





Doors

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Various


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Various

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Projects Manager
Eng. Mostafa yahia
Mob: 0541142582
Email : yahia@7thd.net

Thank You