



FRANKWEN FORGE
(Pty) Ltd

**THE HOME OF QUALITY FORGINGS
& SPECIALISED HEAT TREATMENT**





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Welcome

Founded in 1981, Frankwen Forge has grown into a key manufacturing and engineering business. Our quality products and services have been used in a variety of industries, including the mining, petro-chemical, power generation, marine and general engineering sectors.

Backed by over 40 years in the forging and engineering industry, we strive to be the preferred supplier to customers by delivering excellence in everything we do.



Vision

To forge continued development in the engineering and steel manufacturing sector whilst maintaining a sustainable future for artisans and steelworkers in an ever evolving South Africa.



Mission

Progressing the engineering capabilities in South Africa by continuing to provide a vast array of quality forged and rolled products using suitable material to global standards.

Who We Are

Frankwen Forge maintains pace with the latest International standards and testing methods in multiple sectors. We support customers on technical aspects and engineering drawings as part of our overall drive towards customer satisfaction.



Situated in Benoni, on the outskirts of Johannesburg, Frankwen Forge operates a uniquely diversified manufacturing facility that provides our customers with high-quality forgings in plain carbon, aluminium, copper, low- to medium-alloys, austenitic, martensitic, and duplex stainless steels, as well as round bar. Our capabilities extend to advanced heat treatment □ including stress relieving, normalising, annealing, and through hardening by means of oil and water quenching, salt bath hardening, and case carburising □ along with precision machining and non-destructive testing, all of which meet the most stringent client specifications.

We proudly serve critical industries such as the petrochemical and marine sectors, combining world-class manufacturing with expert metallurgical and technical guidance as part of our customer service philosophy. This commitment is reinforced by the on-site services of Franktech, our SANAS-accredited metallurgical testing laboratory.

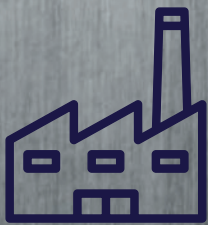
Frankwen Forge has successfully maintained ISO 9001 certification since 2005, a testament to our dedication to quality, consistency, and sound business principles. With a strong reputation for delivering reliable products that meet the needs of both local and international customers, we ensure market-related pricing and agreed delivery timeframes □ without compromise on quality.

FRANKWEN FORGE HAS A UNIQUE AND DIVERSIFIED MANUFACTURING FACILITY THAT OFFERS THE CUSTOMER A VARIETY OF FORGINGS, SEAMLESS ROLLED RINGS, HEAT TREATMENT SERVICES, MACHINING AND NON-DESTRUCTIVE TESTING.



Our Capabilities

- Forgings (from 10kg to 10 tons)
- Heat treatment
- Machining
- Specialised laboratory testing



50 000m²
Total area of site.



**Largest open
die forging
facility in Africa**



+300
We serve over
300 customers



+40
Years experience
in the forging
industry

What We Do



DIVISIONS

FORGE DIVISION

- Hammers
- Ring Rolling
- Hydraulic Presses
- Expander Sizers
- Saw Bay

HEAT TREATMENT

- Normalise,
- Temper, Diffuse,
- Anneal & Stress relieve
- Deep surface salt bath hardening
- Straightening
- Oil and Water
- Quenching

SPECIAL STEELS

- Round Bar
- Carbon Steel
- Alloy Steels
- Peeled Bar
- Cut to length
- Deep Hole
- Drilling
- Facing and centering services

MACHINING

- Rough and final machining
- Petrochemical division

FRANKTECH METALLURGICAL SERVICES

- Metallography
- Corrosion Testing
- Chemical Analysis
- Mechanical Testing

CARBURISING HEAT TREATMENT PLANT

Frankwen Forge has developed this facility as a response to the shortage in the South African market for Heat Treatment units capable of providing quality carburising on medium to extra-large gears and pinions.

Forge Division

Our range of input material includes the popular grades of carbon and low/medium alloy steels of the BS/EN, AISI/SAE and ASTM/ASME ranges. Selected grades of martensitic, austenitic and duplex stainless steels are also kept in stock. Horizontal band saws with capacities of cutting up to 1000mm diameter are used for the preparation of feedstock to the forge.



WE SUPPORT CUSTOMERS ON TECHNICAL ASPECTS AND ENGINEERING DRAWINGS AS PART OF OUR OVERALL DRIVE TOWARDS CUSTOMER SATISFACTION.

OUR DIVERSE FORGING AND RING ROLLING SETUP ENABLES FRANKWEN TO PRODUCE AN ARRAY OF FORGINGS:

Bars/ shafts from $\phi 100\text{mm}$ to $\phi 850\text{mm}$ up to 7500mm in length, either stepped or parallel.

Various rings up to $\phi 2800\text{mm}$ in diameter by 650mm high

Bushes up to $\phi 1500\text{mm}$ by 1200mm high

Forgings from 10kg to 10 tons

AVAILABLE EQUIPMENT:

3 Ringmills with the capability of rolling up to $\varnothing 2800\text{mm}$ diameter and a wall height of 650mm. Max weight - 4 tons.

Ringmills also have capability to profile roll **36 inch raised face weld neck flanges** and **tyres**

3 Hammers -1 ton, 1,5 ton and 3 ton. The 3 ton hammer makes use of a 3 ton manipulator

3 Hydraulic presses - 1000 ton, 1400 ton and 1500 ton all with manipulators

2 Ring expander sizers to ensure ring sizing accuracy



**BACKED BY OVER 35 YEARS
IN THE FORGING AND
ENGINEERING INDUSTRY,
WE STRIVE TO BE THE
PREFERRED SUPPLIER
TO CUSTOMERS BY
DELIVERING EXCELLENCE
IN EVERYTHING WE DO.**



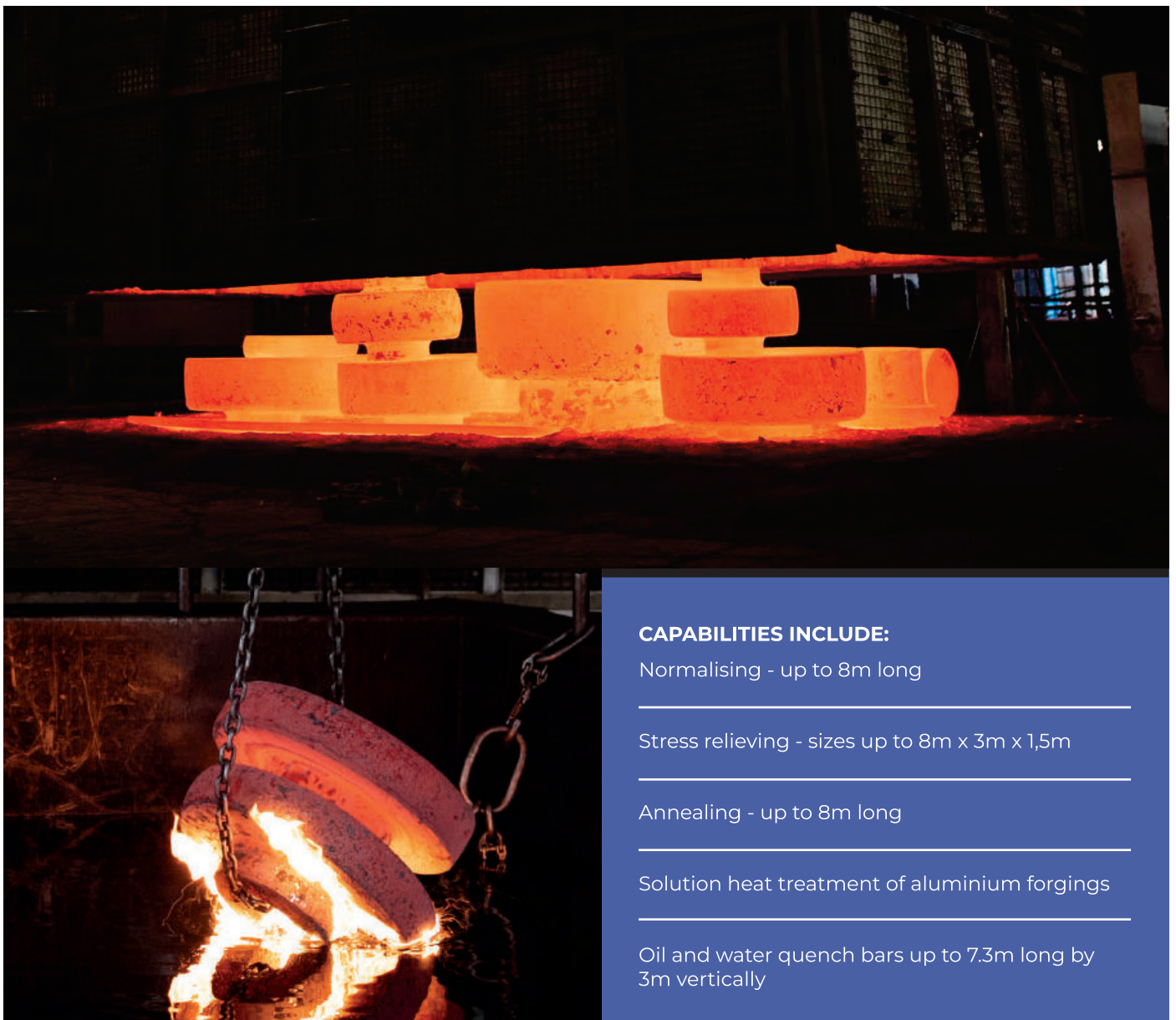
Heat Treatment

Not only are our heat treatment services used to service our own forging department, but also offered to external foundries and round bar merchants.

For round bar merchants straightening is critical. Frankwen uses two gag presses for smaller diameters (25mm+) and a 200 ton press for diameters of up to $\varnothing 650\text{mm}$.

Frankwen has mastered the deep surface salt bath hardening technique whereby the item is run through high temperature molten salt followed by a water quench.

This allows Frankwen to supply critical undercarriage components such as lower rollers.



CAPABILITIES INCLUDE:

Normalising - up to 8m long

Stress relieving - sizes up to 8m x 3m x 1,5m

Annealing - up to 8m long

Solution heat treatment of aluminium forgings

Oil and water quench bars up to 7.3m long by 3m vertically

Special Steels



ROUND BAR:

Standard merchant bar stock sizes, in the popular steel grades are available ex stock in prime lengths.

Additionally, we cut to length and heat treat as required.

ALLOY STEELS:

Bars can be made at short notice to customer requirements ranging from **Ø170mm** and upwards in the below materials:

- 709M40 (EN19)
- 17CrNiMo6
- 826M40 (EN26)
- 655M13 (EN36)
- 817M40 (EN24)

FACING AND CENTERING SERVICES

CARBON STEELS:

Available in sizes $\text{Ø}70$ - $\text{Ø}400$ mm in the following materials:

- 080M40 (EN8)
- 070M55 (EN9)
- 070M20 (EN3A)

PEELED BAR:

Peeler can peel sizes from $\text{Ø}75$ - $\text{Ø}180$ mm in diameter.

CARBON STEEL:

Our automatic band saws are capable of cutting multiple cuts on a continuous basis.

DEEP HOLE DRILLING:

Max length 3000mm and hole size range 55mm to 150mm in diameter

Machine Shop

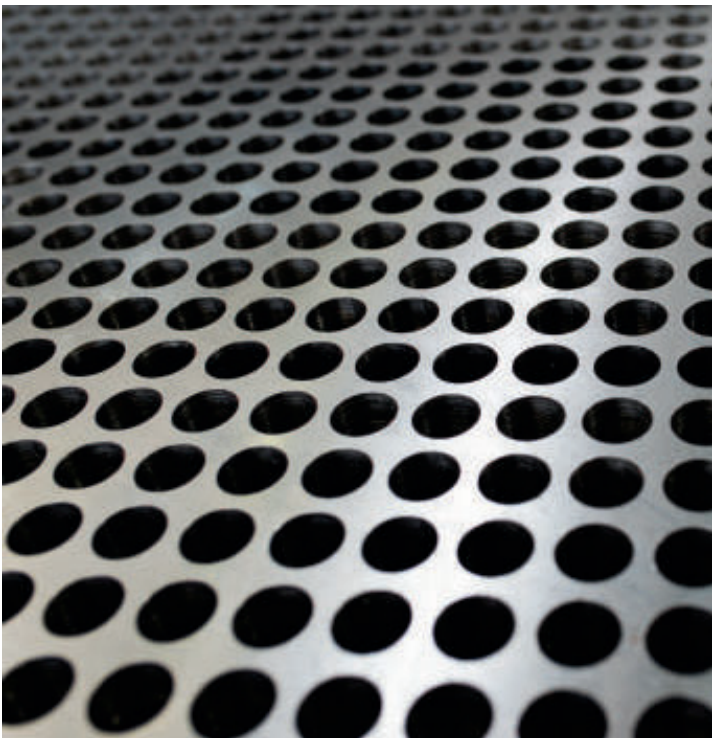


A range of vertical boring mills, centre lathes, horizontal boring mills and radial arm drills are fully tooled for almost every eventuality.

Our CNC machining is the pride of our machining department and a must for precision machining of components and accurate drilling of tube sheets, baffle plates and flanges.

Frankwen is equipped with both 3 and 5 axis CNC machines, allowing us to machine complex, integrally reinforced lip type nozzles and final drill tube holes in plate and forged tube sheets to customers' drawings and specifications.

The majority of our finished machined items are used in the petrochemical and marine industry and thus conform to international specifications.



CAPABILITIES INCLUDE:

Machining capabilities of up to $\varnothing 3000\text{mm}$ in diameter

Proof machining ability of shafts of up to 6000mm in length

Flanges and tube sheets - final machined & drilled

Girth flanges and bushes - final machined & drilled

Long weld necks and lip types nozzles - final machined & drilled

Franktech Laboratory

Franktech is a SANAS accredited, independent Metallurgical testing laboratory that is located on the premises of Frankwen Forge. Lab Accreditation Number: T0244

CHEMICAL ANALYSIS:

Carbon steels (High and low alloy)

Stainless steels

Non - ferrous (on request)

IMPACT TESTING:

ASTM E23; ISO 148-1; NIST Certified

Energy absorbed (Joules)

Lateral expansion

Percentage shear

Room temperature and sub zero to -196 degrees celcius

WELD TESTING:

EN ISO 15614 - 1; ASME IX and AWS D1.1-D1.6

Procedure and Welder qualification

Flattening test, Bend tests, Tensile, toughness, macro and hardness traverse

CORROSION TESTING:

ASTM A923 Methods A, B & C; ASTM A262 Practice A, C & E

Test for susceptibility to intergranular corrosion in Austenitic Stainless steels

Test for detrimental intermetallic phases in duplex Stainless Steels

MACRO & MICRO EVALUATION:

Structure evaluation & Interpretation

Cleanliness (ASTM E45 & ISO 4967)

Grain Size (ASTM E112)

Ferrite/austenite phase balance on duplex and stainless steels (ASTM E562)

TENSILE TESTING:

ASTM E8; ISO 6892-1

Ultimate tensile strength | 0.2% Proof stress

Reduction of area | Percentage elongation

Hot tensile testing up to 600 degrees celcius

HARDNESS TESTING:

Brinell (3000kg)- ASTM E 10; BS EN ISO 6506-1

Vickers 1KG, 10KG & 30KG - ASTM E92-82-03; BS EN ISO 6507-1

SIMULATED HEAT TREATMENT:

Post weld heat treatment (Short and Long Cycles)

Simulated carburize (Core properties)

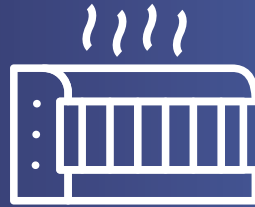


FRANKWEN FORGE

New Specialised Carburising Heat Treatment Plant.

Frankwen Forge has developed this facility as a response to the demand in the South African market for quality carburising of medium to extra-large gears and pinions.

The department has three Vertical Furnaces, electrically powered, with airtight retorts enabling accurate carburising atmosphere control.



USABLE FURNACE DIMENSIONS UP TO 2M Ø FOR GEAR RINGS & 5.6M LONG FOR SHAFTS

THREE TEMPER FURNACES



ONSITE NITROGEN GENERATOR



THE OIL QUENCHING TANK 60 000 litre tank: with four agitation pumps for efficient cooling

"**GAS CARBURISING**" is carried out in airtight Retorts with a mixture of **Nitrogen, Methanol and Propane.**



Furnaces are efficiently controlled by means of pre-determined **TIME, TEMPERATURE & CARBON POTENTIAL PARAMETERS.**

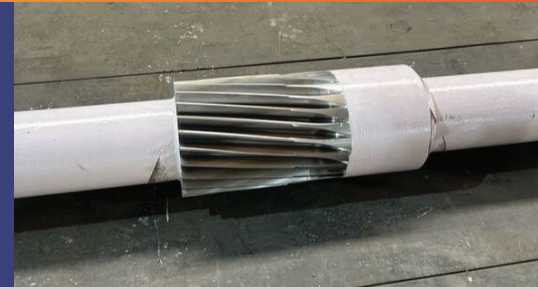
Permanent 24/7 recording with additional test pieces quenched during the cycle, for **IN PROCESS** case depth and case microstructure verification.

These tests will be conducted at our adjoining SANAS accredited Laboratory, Franktech.



We can accurately control case depths from **1.0mm** to **5.0mm** as per order Requirements.

We are geared up to carburise mainly **655M13** (EN36B) and **17CrNiMo6** materials.



It is a **STRICT REQUIREMENT** that all components for **Carburising** have previously been "**High Temperature Normalised**", (@Min 950°C) and are **Hydrogen free**.

THE PROCESS INVOLVES:

STEP 1

Clean components and paint with stop off paint, on designated areas not requiring carburising, if so required by customers.

STEP 2

Gas Carburise for specified hours per case depth. Test pieces will be evaluated during the process for verification.

STEP 3

Decrease temperature to a predetermined temperature, equalise and Oil Quench.

STEP 4

Temper and treat Cryogenic as and when required.



STEP 5

1. **Hardness Testing** components combined with Laboratory evaluation of Final Load Test Pieces.
2. **Case depth** (Vickers Hardness graph profile.)
3. **Microstructure evaluation** to determine absence of carbides & retained austenite



Our Contribution

The Elevation Hub

Equip. Empower. Transform.

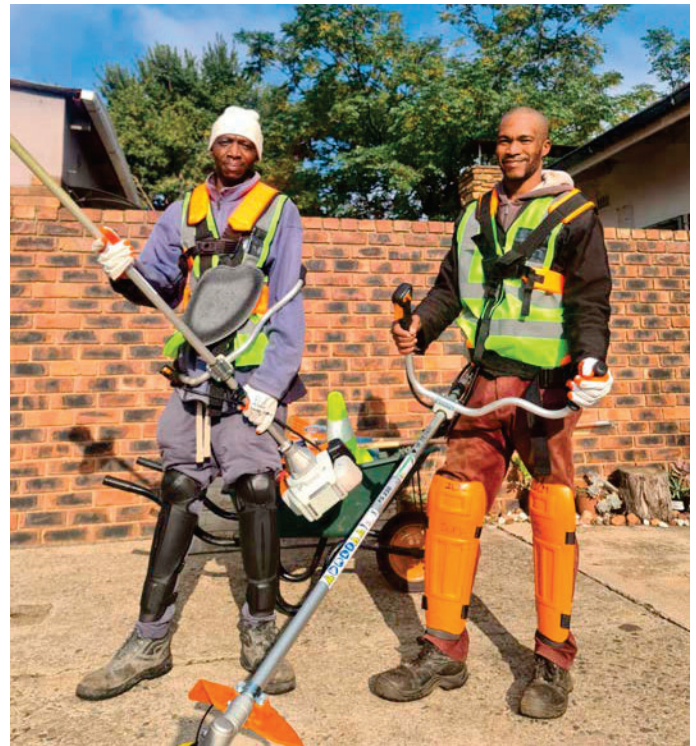


THE ELEVATION HUB

As part of Frankwen Forge's commitment to building a stronger, more resilient Benoni, The White House Healing Centre—now known as The Elevation Hub—was created to bring healing, opportunity and restoration to underserved communities through holistic physical, economic, and spiritual transformation.

Physical Healing

Support is offered through counselling, partnerships with local nonprofits, and assistance with basic essentials. The Heart of Benoni project employs men who have completed equipping courses to help clean and restore the Benoni CBD twice a week—serving as both visible change and a pathway to long-term employment.



Economic Healing

To break the cycle of poverty, we empower individuals to take control of their futures. Our core programme, Work 4 A Living, teaches practical skills, a strong work ethic, and a positive mindset—producing capable, purpose-driven individuals ready for the workplace.

Emotional & Spiritual Healing

In partnership with Inner-City Ministry, we offer weekly gatherings, equipping courses, and prayer ministry sessions open to the wider community. These provide vital support to those facing emotional and spiritual challenges.

With a growing network of NPO and NGO partners and alignment with BEE initiatives in skills, enterprise, and socio-economic development, the Elevation Hub is a powerful bridge between business and community.

You too can support the Elevation Hub. We issue Section 18A certificates for donations, which also count towards your business's BEE initiatives.

www.elevationhub.co.za



+ 27 11 746 9200



43 Liverpool Road,
Benoni, South Africa



info@frankwenforge.co.za



www.frankwenforge.com

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