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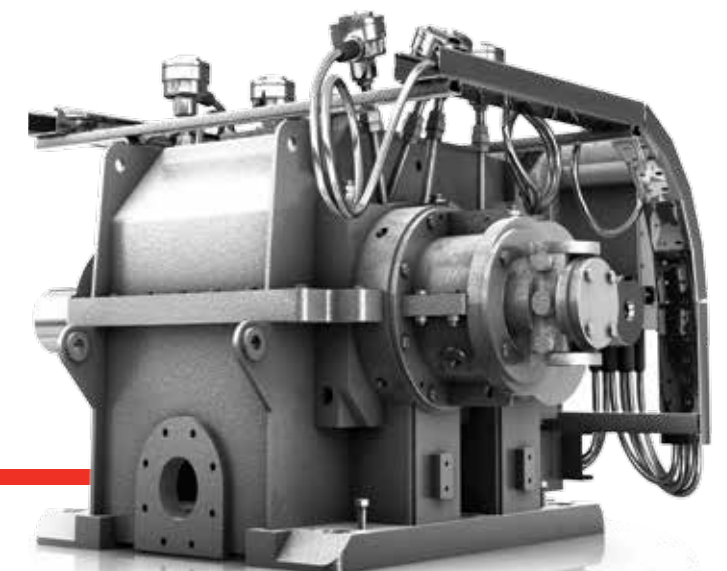
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top drive gears
high speed drives
pressure pump drives
jacking pinions

The oil and gas industry driven by David Brown

jacking gearboxes
fixation systems
firewater pump gearboxes
crane slew and winch drives
drawworks gears
speed reducers
service and repair



Product catalogue



24hr Gearbox
Emergency helpline
T +44 (0) 1484 465666

Print date 11/14 Revision date 11/14

Global version

Moventas approved service and repair centre

The information contained in this catalogue has been obtained through sources deemed reliable but cannot be guaranteed as to its accuracy. Any information of special interest should be obtained through independent verification and consulted with a David Brown representative.

In the interest of continuous development, David Brown reserves the right to alter designs and specifications without prior notice.

David Brown is certified to ISO9001:2008. Your David Brown representative should be consulted prior to product selection and use. 3X terms and conditions apply. Contact your local David Brown representative for details and to check eligibility.

The oil and gas industry driven by David Brown



David Brown offers an extensive range of gears and transmissions for all stages of the oil, gas and petrochemical processes. Working in partnership with our customers, we understand your operating environment and engineer solutions that are reliable, durable and meet your needs exactly.

We work within the very heart of the oil, gas and petrochemical industries and use our global references and experience to ensure we can drive value into your processes. We work to always maximise availability and lower the total cost of ownership for you and your customers globally.



Think reliability. Think David Brown

- Durable, reliable, low maintenance gearboxes
- Maximum interchangeability for easy drop in replacements
- All gearboxes conform to the latest ISO, AGMA, DIN and API (high speed) standards, including marine insurance standards (DNV, ABS, GL) where required
- Custom engineered solutions designed to enable OEMs and end users to optimise their package offering
- Global network of service and repair centres for local oil and gas expertise and customer support
- Full load, full speed testing available

Partnering with our customers to build solutions that last



Upstream

Also known as the exploration and production sector, upstream processing refers to the recovery and production of crude oil and natural gas. Upstream processing includes searching for, drilling and operating the crude oil or natural gas wells.

Products

- Top drive gears
- Mud/frac pump drives
- Drawworks gears
- Compressor drives
- High speed pump drives
- Rotary table gears
- Crane slew and winch gears
- Jack up rig gears
- Anchor winch gears
- Gen-set high speed gears
- Right angled fire water pump gears



Midstream

The midstream industry processes, stores, markets and transports crude oil, natural gas and natural gas liquids such as ethane, propane and butane.

Products

- High speed pump drives
- Compressor drives



Downstream

The downstream oil sector refers to the refining of crude oil and the subsequent sale and distribution of natural gas and products derived from this process.

Products

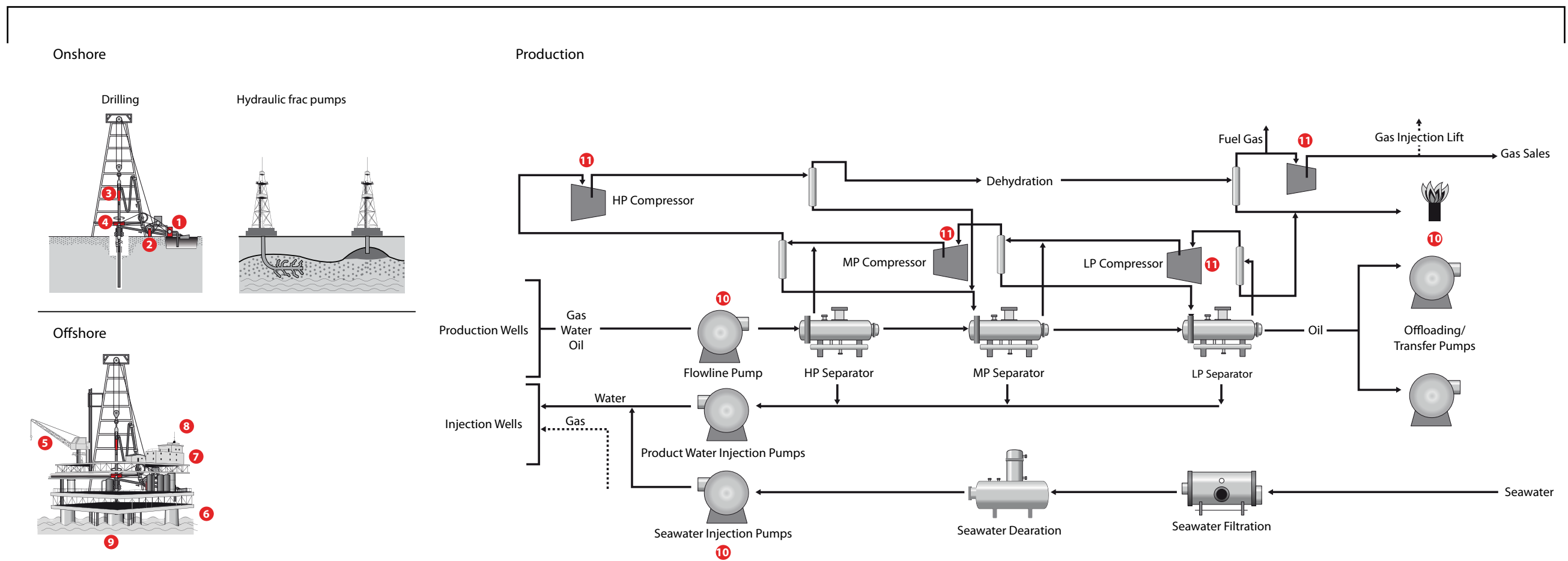
- Compressor drives
- Process pump reducer drives

The upstream oil and gas process

We understand the demands of the oil and gas process and our experience in supplying gears and transmissions to this market for more than 80 years ensures we are equipped to deal with any challenge, at any stage of the process, anywhere in the world.

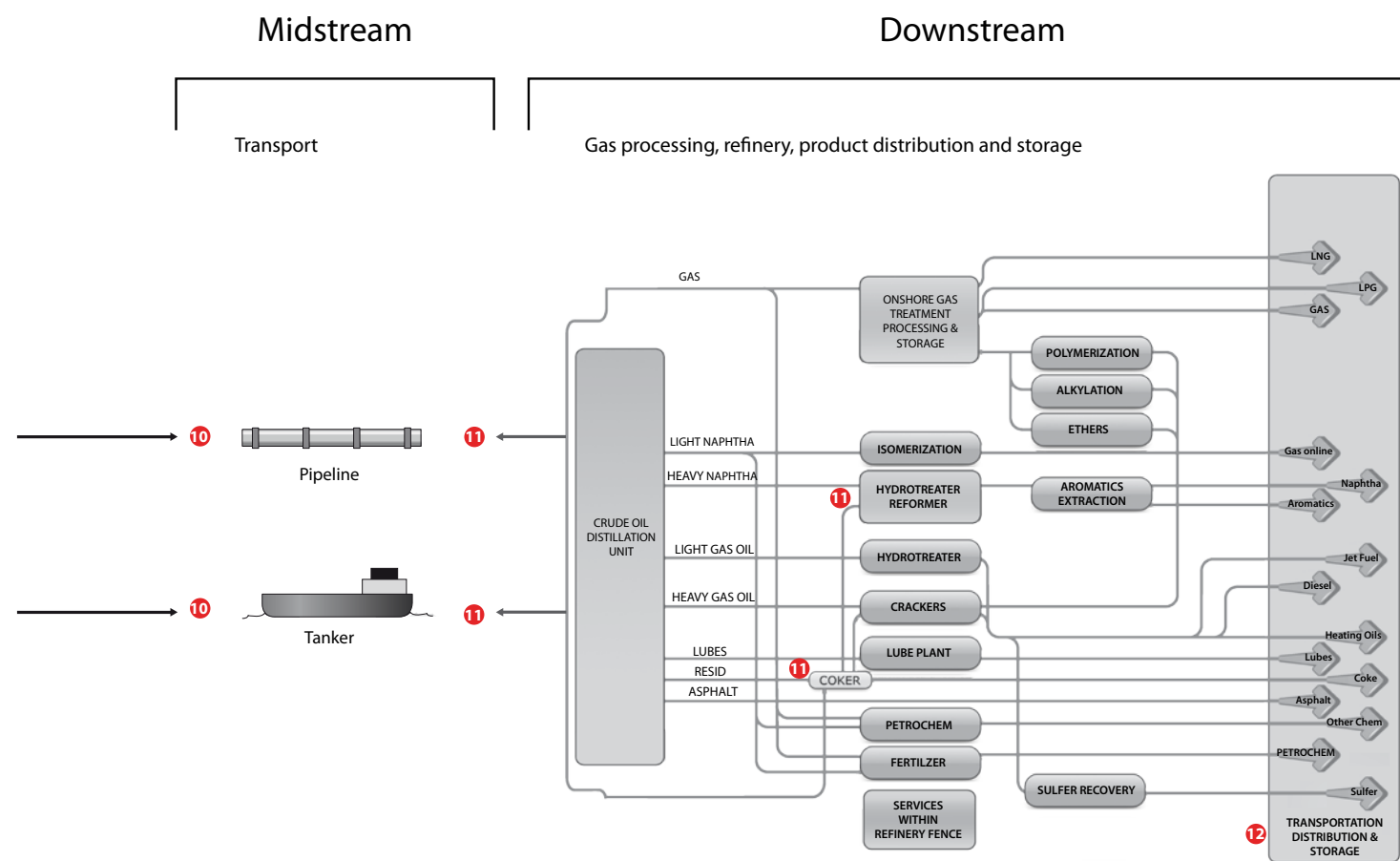
Our global network of manufacturing and service facilities gives you access to application specific knowledge and customer support for any type of gearbox. We work with you and your customers to ensure you have the best and most reliable solution for your specific needs and circumstances.

Upstream



- 1 Mud/frac pump drives
- 2 Drawworks gears
- 3 Top drive gears
- 4 Rotary table gears
- 5 Crane slew and winch gears
- 6 Jack up rig gears
- 7 Anchor winch gears
- 8 Gen-set high speed gears
- 9 Right angled fire water pump gears
- 10 High speed pump drive
- 11 Compressor drive
- 12 Process pump reducer drive

The midstream and downstream oil and gas process



- 10 High speed pump drive
- 11 Compressor drive
- 12 Process pump reducer drive



Utilising our experience in assurance critical industries, David Brown works with you every step of the way to deliver reliable gear systems for mid and downstream oil and gas applications.

Engineering expertise

David Brown has a dedicated global team of design engineers experienced in providing tailored solutions for all applications in the oil and gas industry. Our engineers work with you to provide optimised designs using state of the art software, equipment and processes.

Housings, couplings and shafts

- Designed for thermal efficiency
- Using the latest software design tools for FEA analysis and 3D modelling (Solid Edge)

Gear design

- David Brown designs to API, AGMA, JIS, DIN or ISO standards
- Tooth modifications to achieve optimal performance
- Using the latest software design tools for power transmission

Assembly & load testing

All gearboxes follow strict quality control guidelines and reviews before being shipped to our customers worldwide

David Brown offers no-load spin testing and full scale load testing of stand alone gear units or complete drive assemblies depending on your requirements

Our full load testing capabilities include the measurement of temperature, vibration and noise

State of the art manufacturing capabilities

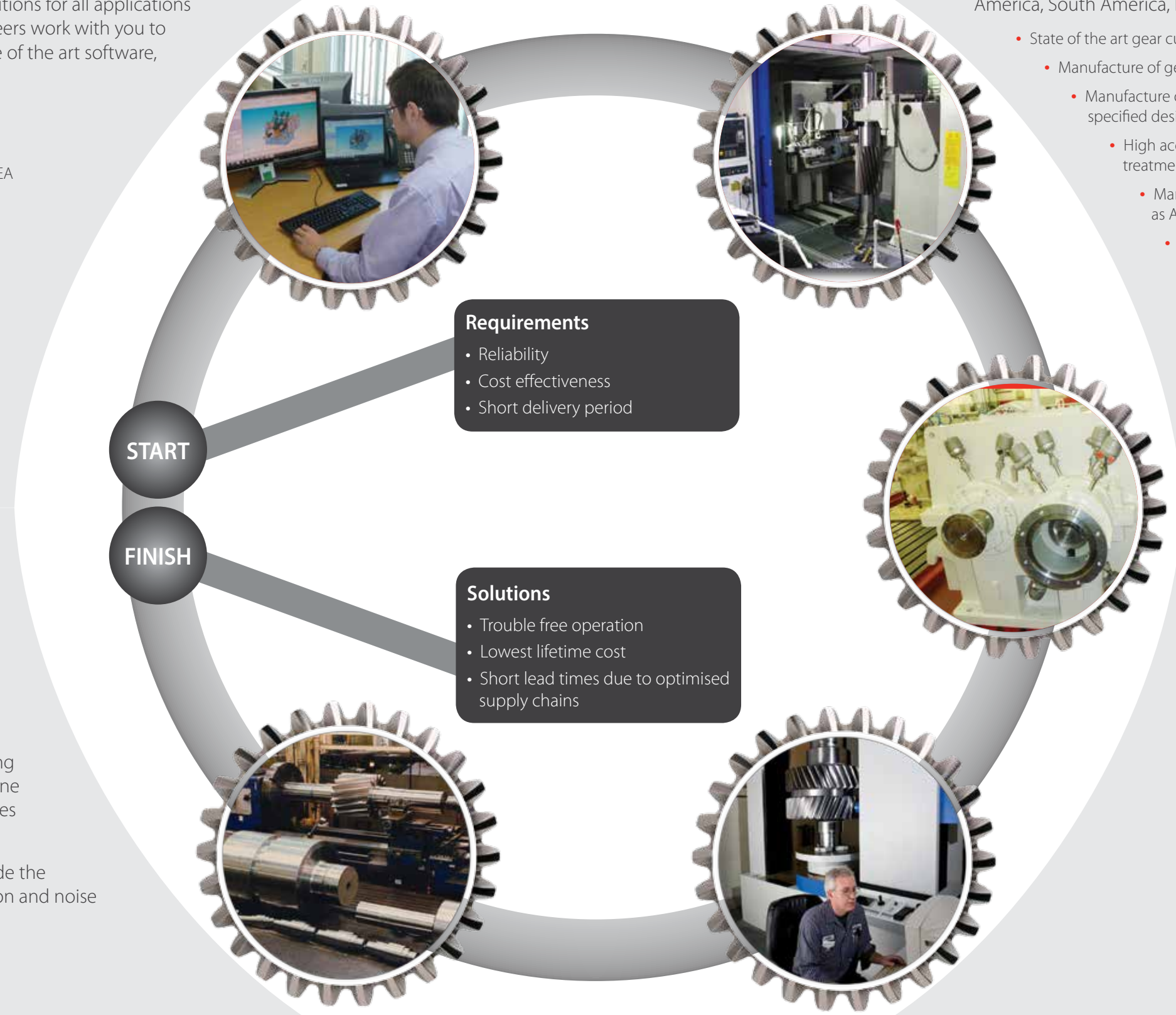
Unrivalled capability to manufacture or assemble gears in North America, South America, Europe, India and Australia

- State of the art gear cutting and grinding machine tools
- Manufacture of gears and gearboxes to any rating or gear grade
- Manufacture of full gear systems and loose gears to customer specified designs
- High accuracy gears up to AGMA 14 after heat treatment
- Manufacture to major international standards such as API, AGMA, JIS, DIN, DNV and ISO
 - In house carburising to 3m and 4.5 length

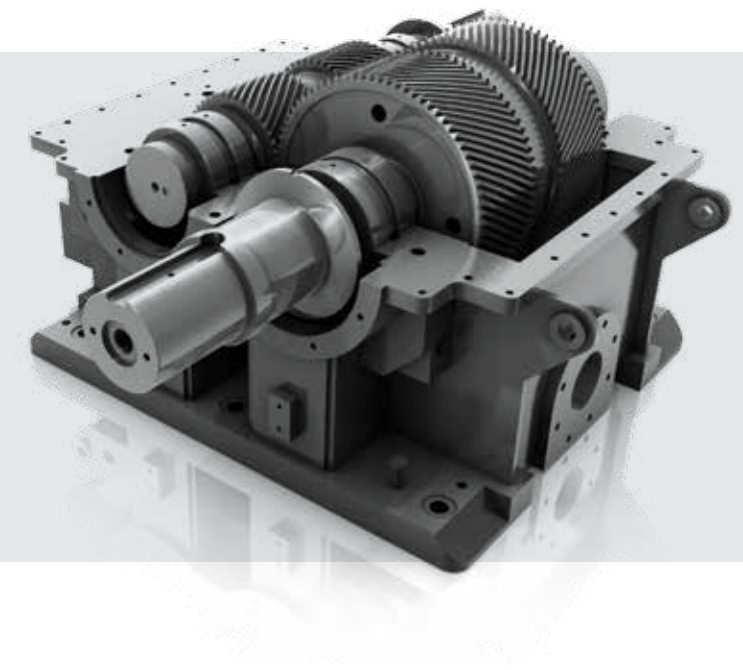
Quality control

Equipped with cutting edge gear inspection equipment as well as the latest onboard and stand alone gear measurement technology

Design and manufacture to major international standards



The complete oil and gas industry product range



David Brown has an extensive range of gearboxes for drilling, jack up rigs, high speed and auxiliary applications. All David Brown gearboxes are designed and manufactured to major international standards including API, DNV and ABS to ensure a safe, reliable and durable product in service. Our main priority is to ensure you have maximum availability and productivity at the lowest lifetime cost.



High speed gearboxes

David Brown engineers high quality, high speed gearboxes that operate at speeds beyond 40,000rpm. Our new range of high speed gearboxes combine flexible, high performance designs with cost effectiveness.



Top drive gears

We offer comprehensive top drive solutions through our global design and manufacturing facilities.



Jacking pinions

David Brown has experience in different module sizes and manufactures jacking pinions to many major international standards such as DNV and ABS.



Jack up rig gearboxes

We design and manufacture multi-stage planetary and multi-stage spur and helical gearing for jack up rigs across the globe.



Fixation systems

David Brown has extensive experience in supplying electro-mechanical platform fixation systems utilising a wide range of gearing technology



Pressure pump drives

Oil drilling requires products that are capable of handling the arduous processing environment. David Brown's pressure pump drives are designed and built to guarantee reliability in these vital processes.



Drawworks gears

David Brown engineers drawworks gearboxes to suit customers' specific applications, providing ultimate reliability and maintainability.



Firewater pump gearboxes

David Brown has a proven history in supplying quality spiral bevel gearing for vertical pump applications and can supply both speed increasers and speed reducers.



Speed reducing gearboxes

David Brown can design and manufacture any speed reducing gearbox for applications such as reciprocating pumps, reciprocating compressors and anchor winch drives.



Crane slew and winch drives

David Brown manufactures two or three stage planetary design crane slew and winch gears to customer specifications.

The HX series



When it comes to specifying high speed gearboxes for critical applications such as pumps, compressors and generators, we use our experience in designing innovative gearboxes for some of the world's most critical applications.

Our HX high speed gearbox series combines enhanced performance, adaptability and increased reliability to deliver a standard range that has the flexibility to meet your specific requirements.

At a glance

- The HX range covers applications up to 60MW
- Standard product range that's adaptable in design to suit your application as well as meet your needs for rapid delivery and minimal downtime
- Global high speed manufacturing capabilities across five continents
- Capability to supply full package solutions including lubrication systems, instrumentation, barring drives and clutches
- 5X five year warranty available. This industry leading warranty delivers complete assurance for the first five years of operation



Key features

- Double helical gearing is supplied as standard but single helical gears can be incorporated to suit customer requirements
- All HX gearboxes are designed to limit sound pressure levels to meet your noise emissions standards
- All high speed gearboxes are no-load tested at full operating speed. Load testing and back-to-back testing programmes are available if required
- Oil reservoirs and housings that enclose moving lubricated parts are designed to minimise contamination by moisture, dust and other foreign matter during operation and when static

Gearbox design features

- The HX range is designed and manufactured to all major international standards including: API613, API677, AGMA6011, AGMA421.06, ISO and DIN
- Flexible gear case configuration allows for the positioning of oil inlets either side, or at the end of the gear case to minimise pipe runs
- The gear case is designed and manufactured in cast iron or fabricated steel, dependant on customer requirements. It is accurately machined to ensure noise and vibration damping
- All HX high speed gears are designed to operate at maximum efficiency with minimum oil quantity. If needed, we can supply an integrated or stand alone lubrication system depending on your requirements

Product range includes:

Low ratio gearbox including ratios 1.2 to 4.1 - Optimised ratios beyond 4.1 are available on request

	A	B	C	D	E	F	G	H	I	J	ØK max	ØL max	M	
													Cast	Fabricated
HX200	200	400	810	430	290	320	650	803	165	205	100	125	40	65
HX250	250	430	950	485	340	360	770	923	205	260	125	160	45	65
HX280	280	460	1030	520	370	380	830	1003	230	295	140	180	50	65
HX315	315	500	1135	560	410	410	940	1098	260	325	160	200	55	65
HX355	355	540	1245	600	440	450	1010	1203	295	365	180	225	55	65
HX400	400	590	1370	650	490	480	1140	1333	325	405	200	250	65	65
HX450	450	640	1520	720	540	530	1220	1468	365	455	225	280	65	84
HX500	500	690	1650	770	590	560	1300	1588	405	510	250	315	70	84
HX560	560	750	1800	830	640	600	1450	1763	455	575	280	355	70	84
HX630	630	820	1990	900	700	660	1570	1938	510	645	315	400	75	92
HX710	710	900	2180	975	770	700	1690	2153	575	725	355	450	80	92

High ratio gearbox including ratios 4.1 to 8.5 - Optimised ratios beyond 8.5 are available on request

	A	B	C	D	E	F	G	H	I	J	ØK max	ØL max	M	
													Cast	Fabricated
HX200	200	400	770	430	310	260	520	623	165	205	100	125	40	60
HX250	250	430	870	485	360	260	560	698	205	260	125	160	45	60
HX280	280	460	930	520	380	270	660	743	230	295	140	180	50	65
HX315	315	500	1045	560	430	300	750	808	260	325	160	200	55	65
HX355	355	540	1125	600	470	300	800	863	295	365	180	225	55	65
HX400	400	590	1230	650	510	320	900	923	325	405	200	250	65	65
HX450	450	640	1370	720	570	350	950	1023	365	455	225	280	65	65
HX500	500	690	1480	770	620	360	1010	1113	405	510	250	315	70	70
HX560	560	750	1620	830	670	390	1130	1208	455	575	280	355	70	70
HX630	630	820	1790	900	740	420	1190	1308	510	645	315	400	75	75
HX710	710	900	1970	975	820	440	1280	1433	575	725	355	450	80	80

HX800 and HX900 available in a fabricated case design

Drilling products: top drives and drawworks

David Brown provides a comprehensive range of gearing products and solutions for capital drilling equipment such as top drives and drawworks. Working to our customers' designs, we can produce high quality gearing at any of our manufacturing facilities across the globe. David Brown can also offer a comprehensive turnkey solution for gearbox supply utilising our global supply chain and fully equipped assembly and test facilities.

We form collaborative relationships with our customers and add value through our large engineering teams.

Proven capabilities in gearing technology

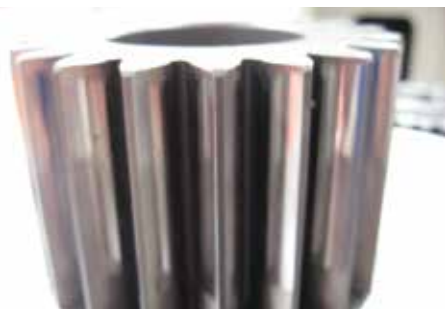
Key features

- Supply of single components through to fully tested gear units
- Using our global engineering capability to optimise gear and gearbox design
- Expertise in uprating and redesign
- Global manufacturing facilities located in key OEM manufacturing areas

Gear design features

Key features

- Spur, helical and planetary gearing
- Designed and manufactured to all major international standards for ultimate performance and reliability
- Wide range of gearing technologies available
- Supply of gear components through to complete, tested gearboxes
- Typical sizes range from 1/2"Ø to 288 P.D, larger dimensions can be accommodated



We deliver global support locally through a network of 15 service centres and five manufacturing facilities in major oil and gas producing areas throughout the world

Pressure pump drives



David Brown provides tailored loose gearing and full pressure pump drive gear systems for OEMs and end users across the globe. More than 150 years of gearing innovation in assurance critical industries enables us to design and manufacture any type of loose gear at any size, as well as complete gearbox systems for:

- Hydraulic fracturing
- Cementing
- Acidizing
- Mud pumping

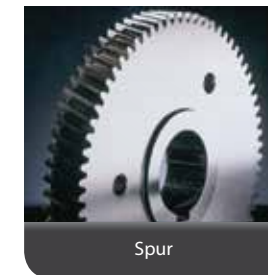
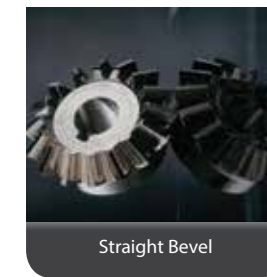
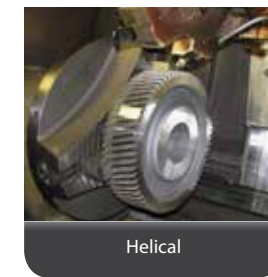


Key features

- David Brown is one of the few gear specialists that has the capability to manufacture loose gears at any size, globally
- David Brown's pressure pump gears are lightweight, compact and strong to support HP increase
- All pressure pump gears are designed to the latest major international standards such as ISO, DIN, APV and AGMA
- Combines high quality, adaptability and reliability for maximum availability
- Flexible gearbox mountings in line with OEM's pump arrangement

Gears for pump applications

- Herringbone arrangements for main crank gears
- One or two speed reducers between the diesel prime mover
- Multi stage reducers to truck PTO
- Planetary or spur main drives
- Two speed parallel shaft intermediate step down gearboxes
- Side mounted, end mounted and internal gearing arrangements depending on pump specifications



Typical capabilities

TYPE	SIZES		
	Face	Size	Pitch
From 1/2"Ø, 48 D.P. to maximum sized listed:			
Spur gears	48"	288" P.D.	0.5 D.P.
Helical gears	48"	288" P.D.	0.5 D.P.
Internal gears	30"	228" P.D.	0.63 D.P.
Bevel gears	8"	36"	7/8 D.P.
Gear racks (spur or helical)	10"	10' - 12'	1 1/2 D.P.
Spline shafts	All sizes and pitches depending on design		
Sprockets	18"	60" P.D.	3" Pitch
Double helical gears	17"	288" P.D.	0.5 D.P.
Ground gears (with or without crowning)	63"	72" P.D.	3/4 D.P.
Gear inspection	80"	80"	All

The above shows our typical capabilities. If your required size is above the dimensions listed above, please contact your local David Brown office.



Jack up rigs: gearboxes, pinions and fixation systems

We work at the very heart of the oil and gas industry to provide innovative jack up rig gearboxes, pinions and fixation systems. Failure is not an option and David Brown has the experience, expertise and global manufacturing capability needed to deliver reliability to jack up rigs worldwide.

Jack up gearboxes

Key features

- Typical ratios from 7000 - 9000rpm
- Output speeds from 0.1- 0.3m/min
- Typical rated jacking capacities from 80-500 tons
- Typical rated preload capacities from 80-600 tons
- Typical rated normal holding capacities from 150-800 tons
David Brown can provide solutions for all major rig designs including Le Tourneau, Gusto and Keppel FELS arrangements
- David Brown can support jack up rig operators across the globe through global design, manufacturing and testing facilities

Jack up pinions

Key features

- All David Brown jack up pinions are compliant with ABS and DNV design, manufacturing and test requirements
- Experience in a range of module sizes from 50-105 MOD
- Conforms to AGMA 14 after heat treatment

Fixation systems

Key features

- Complete range of gearing technology to match each application
 - Helical
 - Planetary
- High overload capacity and low backlash
- Compact and lightweight designs enable higher torque production within the same space envelope



We utilise more than 150 years of gear engineering expertise to deliver jack up rig gearing that performs in even the most arduous operating environments



Other gear systems for oil and gas industry applications

Whether we're working with process and equipment designers to deliver robust, reliable systems or with oil & gas engineers to maintain optimum plant performance for longer, we pride ourselves on the quality of our work and the assurance that it brings.

David Brown offers a range of auxiliary products for the oil and gas industry which are tailored to suit our customers' exact requirements. Using our proven track record of meeting the demands of the oil and gas industry, we design auxiliary gearboxes to be flexible, reliable and cost effective.

Firewater pump gearboxes

David Brown has vast experience in supplying quality spiral bevel gearing for offshore vertical pump applications from mine hoists and associated equipment in many types and sizes to full gearing drives. We understand the demands of the upstream oil and gas processes and our firewater pump gearboxes are designed to be flexible, reliable and cost effective and are tailored to suit your exact requirements.

Key features

- Proven design capability up to 6MW
- Precision machined for smooth and quiet operation
- Utilising our global engineering expertise to optimise gear design

Gearbox design features

- Designed in accordance with AGMA and API requirements
- Spiral bevel gears
- Rolling element type bearings
- Thrust bearings designed to carry pump loads
- Hollow shaft design available
- Sprag clutches can be incorporated

Crane slew and winch drives

David Brown's two or three stage planetary design crane slew and winch gears are designed to guarantee reliability within our customer's exact specifications. We provide an adaptable range of slew and winch gears that are capable of handling even the most demanding offshore environments.

Key features

- Utilising our global engineering expertise to optimise performance
- Delivering global support locally through a network of 15 service centres in major oil and gas producing areas
- Global manufacturing facilities located in key OEM areas

Gearbox design features

- Planetary gearing designs supplied
- Single or double helical gears can be incorporated



Rapid global support delivered locally



David Brown understands that fast response is key to anyone who needs gearbox service and repair in the oil and gas industry. Our global network of manufacturing and service facilities ensures we can provide support to you and your customers wherever you are, whenever you need us. We work to make sure you are supported by engineers who know your gear system inside out as well as understand your business needs and operating environment exactly.

Not only do we provide support for all David Brown gearboxes, we can also service and repair other manufacturers' units including: Flender, Voith, Renk, Allen Gears, Lufkin, Philadelphia Gear, Brevini, Bonfiglioli, Horsburg & Scott and Renold.

Services offered

- Gearbox inspection and site services
- Gearbox repairs and overhauls
- Upgrades
- Asset management programmes
- Full diagnostic and performance testing
- Failure analysis
- Retrofit replacement gearboxes
- 3X extended warranties

David Brown has recently introduced 3X - a full three year extended warranty on any gearbox that's serviced, repaired or upgraded by David Brown at our manufacturing and service facilities across the globe.

Key features

- Available for any make or model of oil and gas industry gearbox*
- Installation, commissioning and maintenance of your gearbox at regular service intervals by a specialist David Brown service engineer local to you
- Access to round the clock support through our global network of service and repair centres



Below is an example of a high speed gearbox recently delivered to David Brown's UK facility for rapid repair and overhaul.



We understand that gearbox downtime can be expensive so we strive to get your gearbox up and running in the fastest possible time to reduce your total costs of ownership.

Your local gearbox service and repair team comprises the following key functions and are dedicated to supporting our global customers at a local level.



Engineering

- Giving our customers sound technical advice and informed, proactive upgrades
- Engineering the best solution to fix your problem
- Using our proven track record to maximise your operational efficiency



Site services

- Fast response with dedicated, experienced service engineers
- Full range of services delivered by experienced engineers local to you
- Parts and services warranty to minimise downtime impact



Project management

- Coordinating our global teams to provide rapid repair and redelivery of your gearbox
- Local support delivered through our global network of service centres



Quotations

- Competitively priced at your specified lead time
- Honest and professional service