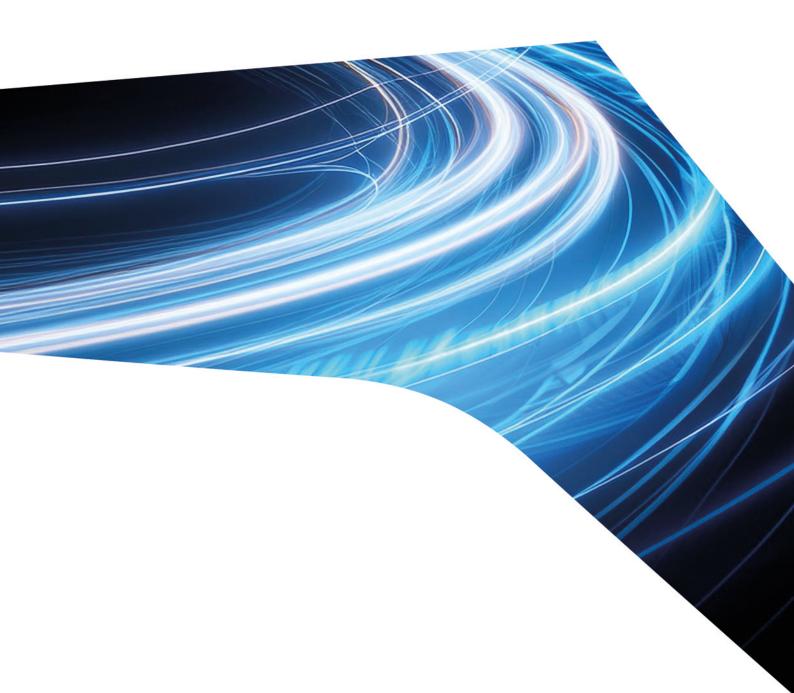


Off-Highway Drive and Motion Systems Industrial Business



Off-Highway Drive and Motion Systems



As an innovative leader, Dana Off-highway continuously improves the performance and efficiency of vehicles and machines worldwide. We aim to be the global pacesetter in efficient power conveyance and energy-management solutions.

Mobile





MINING





· 6 MATERIAL HANDLING



Off-Highway Brand Portfolio

Supported by a legacy of innovation in conventional drivetrains, Dana Off-Highway is at the forefront of integrating mechanical and electrical components for alternative propulsion applications. We embrace evolution to be a step ahead in supporting new applications as they emerge and collaborating with customers as they develop tomorrow's vehicles.

Drivetrain and e-Drive Systems

Motion and e-Motion Systems

Gears and Shifting Solutions

Thermal Management

Sealing

Electric and Hybrid e-Drive Systems



Industrial







ONSHORE AND OFFSHORE MARINE



INDUSTRIAL AND STATIONARY EQUIPMENT HEAVY INDUSTRY: STEEL



WASTE MANAGEMENT AND RENEWABLE ENERGY



SUGAR, AND CEMENT



PLASTIC AND RUBBER





Enhanced Brand Portfolio

Dana's well-respected brands offer both standard and customized products backed by engineering, manufacturing, and distribution facilities positioned near customer supply chains around the world.



Helical and Bevel-Helical Drives

Electronic Sensors and Controls

Planetary Drives

Slewing Drives

Winches

Gearmotors

Driveshafts



Extruder drives



Custom Gears and Drive Systems

Dana's Industrial Focus

Dana's Industrial business team is uniquely positioned to support customers in specialized sectors with power-transmission technologies.

We determine each customer's unique needs in developing the right solution that delivers reliability, efficiency, and performance for both mobile and industrial applications.

Dana Industrial Business





Our team dedicated to your industrial business

At Dana, our integrated teams have decades of expertise in developing and supporting precision-made packages for our customers' highly specialized applications.

Our local technical experts can quickly define the exact drive and motion needs of your application, with support as needed from specialist application engineers ready to custom-design an integrated system solution that meets your specific needs.

Off-Highway Drive and Motion Systems

Industrial Market Technology Leader with:

Global Reach

Local Presence

Superior Manufacturing and Service



Our Strengths

Global Identity

We leverage our global expertise to deliver **premium quality**, technically advanced, and cost-effective solutions - all designed to meet the specific needs of our customers.

Local and Fast

Our network of Service and Assembly Centers and sales offices provide **local support and expertise for our customers**. Our local inventory and assembly capabilities deliver the right product to you at the right time.

Solutions Provider

Dana's experienced team can match technologies and key components together to deliver industrial system solutions that integrate seamlessly into your application, improving performance, and simplifying your supply base.

Technical Consulting

Dana recognizes that every customer has individual needs. Our engineers discuss the requirements of each customer in detail, calling on their in-depth knowledge of global industrial markets to **develop the right solution**.

Extensive Product Range

Our portfolio of world-class solutions meets the needs of more than 20,000 customers around the world today through **standard and customized products** that can meet most requirements.

Lifetime Support

Our global network of Service and Assembly Centers support you throughout the **lifetime of your application** with a wide and flexible portfolio of cost-effective solutions.



Customization

We **collaborate with our customers** to define your specific application requirements and provide fully customized, tailor-made solutions that check all the boxes for performance, reliability, and efficiency.

Today and Tomorrow

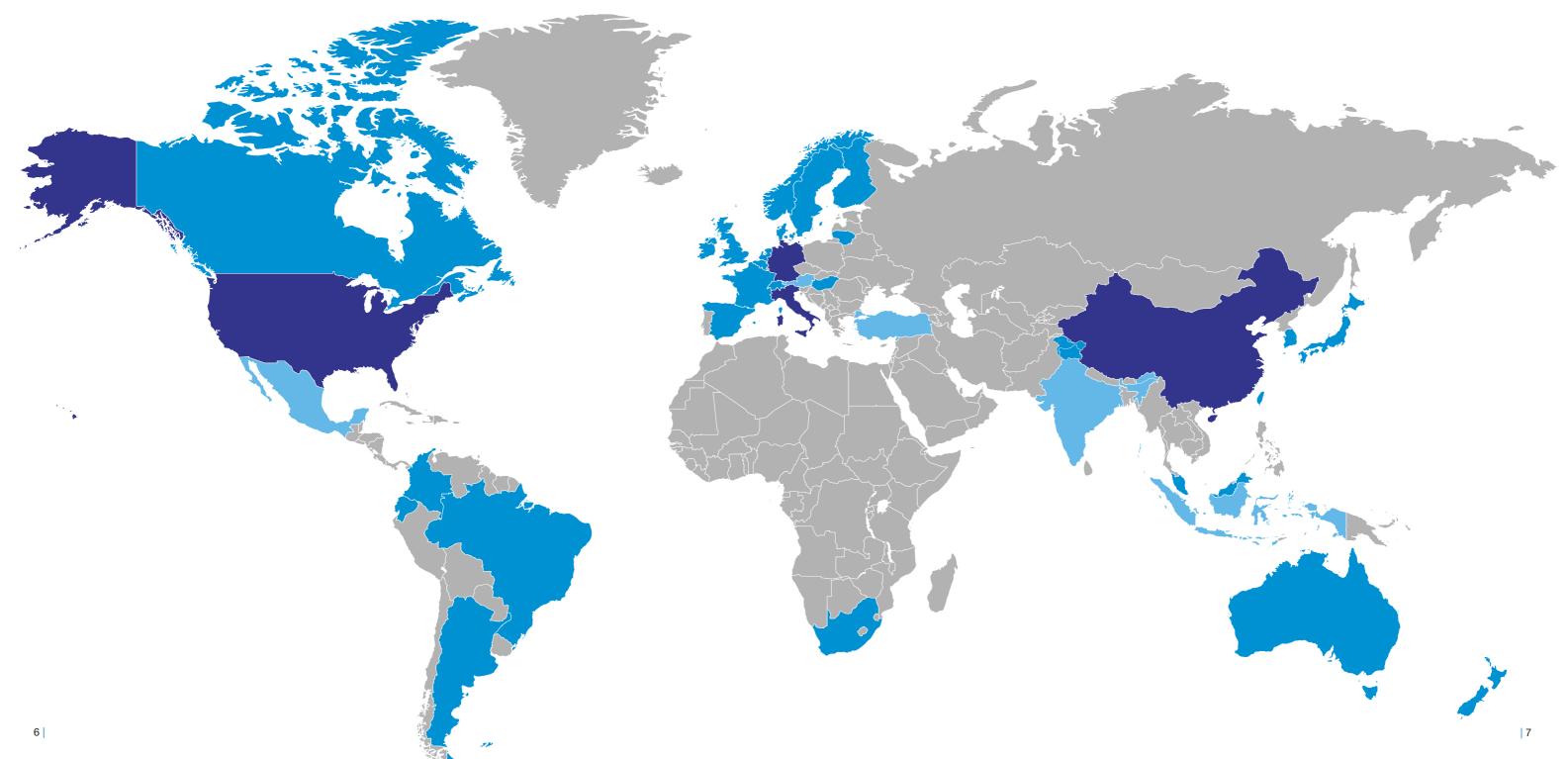
Our culture of continuous improvement drives us to deliver best-in-class **reliability and performance** through cost-effective solutions available today while developing advanced technologies for the future.

Our Global Network

Our worldwide network of **Service and Assembly Centers (SACs)**, **Plants** and **Sales Offices**, provide a fast response, local market knowledge, product expertise, and after-sales support close to our customers across all market segments.



Plants
 SACs
 Sales offices



SACs



Extensive product range

Small batch quantities

Customers often require

specific requirements

while managing costs.

solutions with **low production**

volumes and exceptionally

Short lead times Local inventory Local assembly capabilities

Customers often require **short delivery times** for complete product solutions. Highly specialized requirements

Industrial customers serve exceptionally specific market needs through highly engineered applications with exacting requirements. Industrial customers can benefit from a broader **engineering perspective informed** by best practices from around the world.

Decades

Dana SACs

Customer

Needs

Dana has an extensive range
of modular, flexible solutions
that can be **precisely customized** into highly
specialized,
cost-effective solutions.

To help accelerate the delivery of solutions to customers, our significant and continued investment in local inventory, logistics, and IT infrastructure enables our SACs to reliably **forecast, monitor**, and **achieve** each customer's delivery requirements. Our SACs have deep expertise across all industrial markets, enabling them to deliver tailored system solutions that provide **superior overall performance**. Our SACs offer in-market application **engineering capabilities** bolstered by a close alignment with Dana's global industry expertise and technical resources.



System solutions

Application engineering Local market presence

of market experience

Most local suppliers have limited industry expertise and resources to **develop state-of-the-art technologies**.

Our SACs leverage Dana's global network

of comprehensive engineering and manufacturing resources to develop customized, precision-engineered solutions deployed and supported by a local team **working within your time zone and language**.

Repair and Maintenance Services

We provide three levels of superior repair and maintenance services:

- We repair virtually most makes, models and styles of gearboxes.
- We manufacture individual gears precision-made to customer requirements.
- Our dedicated field service teams can be deployed on-site for inspections, installation, and commissioning.



Our approach to gearbox repairs goes beyond getting your equipment working again. We make it work better.

The Benefits at a Glance:

Fast, Definitive Solutions

Improved Gearbox Performance

versus frequent stoppages due to regular repairs that do not solve the problem.

thanks to an engineered solution, designed and manufactured in-house.



Gearbox Repair

We leverage our extensive knowledge to assess the condition of your gearbox and recommend a cost-effective long-term solution. We are equipped to repair virtually most size and style of gearbox, even those in excess of 30 tons.



Loose Gearing

We expedite the manufacture of new loose gearing through expert reverse-engineering capabilities as well as an in-house loose-gear hobber and two-meter gear grinder. We also manufacture our own shafts and other components to make the process faster, more economical, and better suited to your needs.



Field Service

Our technical teams are available around the clock to provide on-site assessments and recommendations, especially in emergency situations and when equipment cannot be relocated. They are fully equipped to perform laser alignment, vibration analysis, start-up commissioning, and other services to expedite repairs and minimize downtime.





CONSTANT SUPPORT



LIKE-NEW REPAIRS AND **UPGRADES**

TIMELY

REPAIRS

ECONOMICAL

AND

(\$)

Root Cause Analysis, Proactive Support, and In-House Engineering

versus inconclusive, expensive repairs that never completely address the issue.

Our global network of technicians works overtime to fast-track your service and minimize interruptions.

We repair gearboxes to better-than-OEM standards backed by warranties and with options for technical upgrades.

Our efficient repair process quickly and effectively returns your gearbox to operation, minimizing the economic impact to your business.

Product Portfolio

We leverage our global expertise to offer a complete portfolio of highly efficient power-transmission technologies and for industrial and stationary equipment applications.

Brevini[™] Planetary Gearboxes





S-Series

Industrial Slewing Drives

Industrial and E-Range Planetary Gearboxes

Range	Nominal Torque [Nm]	Range	Nominal Torque [Nm]	Range	Nominal Torque [Nm]
S300-S20000	34,000-2,170,000	RPR030-RPR2050	5,000-24,000	E10-E260	1,300-25,000
		SLS300-SLS850	34,000-200,000	EM1010-EM1320	1,000-24,000

Nominal Torque [Nm]

340,000-1,100,000

5,700-113,000

Brevini[™] Helical and Bevel Helical Gearboxes

Nominal Torque [Nm]

10,000-290,000



Range

E2H-E3H-

E4H-E3B-

E4B-E3C-

E4C

High Power

SL2PLB85016 SL2PLB200031

Range

Brevini EvoMax[™] Gearbox



PC-PD-PE-PLC-PLD

PB / PLB 16 - 45

Posired[™] 2

Range

60 - 91



Posired[™] N

Range	Nominal Torque [Nm]
ND-NE 18 - 56	8,200-286,000

Posired[™] TS



Range	Nominal Torque [Nm]		Range	Nominal Torque [Nm]
TS18 - TS63	8,200-400,000		ILC14 - ILC25	3,100-22,800
		·		·

Brevini[™] Plano Helical Gearboxes



Nominal Torque [Nm]

90,000-2,170,000



Range



Nominal Torque [Nm] PH, BPH 13-28 3,900-35,000

Brevini[™] Gearboxes



Range	Power [Kw]
ML32 - 52	10-100
B585 - 602	30-55
RD33 -52	6-12



	Range	Nominal Power [Kw]
()	BZ265	110-130
	BZ290	170-190
BZ	BZ340	220-240
DL	BZ470	380-480

Brevini[™] Winches

Hoisting Winch

es	and the second sec	Re
	Max Line Pull	R

Recovery Winches	

		necovery winches
Range	Max Line Pull at First Layer [kg]	Range
DW 050-090	500-900	BWT 10.000-30.000
BWE 015-160	1,500-16,000	

GWB[™] Industrial Driveshafts





Driveshafts for Industrial Applications

	Range	Torque Range Tcs [Nm]	Flange Diameter [mm]
	687/688-598	35 up to 21,500	00-225 / 600-1,300
	687-688	2,400-35,000	100-225
	587	43,000-57,000	225-285
	390/392/393/492	60,000-1,170,000	225-550
	498/598	210,000-15,000,000	600-1,200

Keep Driveshaft - Special Design

PIV[™] Extruder Drives



Range

XC-XD-XE 16 - 80



Positwin

Nominal Torque [Nm]

5,100-720,000

Range 15B2N 146B2N

Fairfield Custom Drives





Jacking System Drives

Tram System Drives

Transfer Case

Brevini[™] Gearmotors

0
All and the latter of the last

Range	Nominal Torque [Nm]
M, N, K, D 00-97	50-18,000



Max Line Pull

at First Layer [kg] 10,000-30,000



Winch Drives

Gearmotors

Range	Max Output Torque [Nm]
PWD 2100-31100	10,000-110,000
SLW 300-850	85,000-190,000
SMW 1200-3500	300,000-850,000
RCW 908-913	80,000-130,000

super short coupling, tunnel shaft, high speed design, carbon fiber tube electrical insulation, remote lubrication, automatic lubrication, condition monitoring





Special Gearboxes for Plastic & Rubber

Center Distance	Torque / Shaft [Nm]
15-146	40-35,000



Custom Drive Components

Range	Max Jacking Torque [Nm]
S60A-S2000	82,000-2,260,00

Product Portfolio

Brevini[™] Pumps



Axial Piston Pumps, Variable Displacement, Closed Loop

Range	Displacement [cc/rev]	Max Pressure [bar]
HD1	55	450
S6CV	75-128	400



Axial Piston Pumps, Variable Displacement, Open Loop





Axial Piston Pumps, Fixed Displacement, Open Loop

Range	Displacement [cc/rev]	Max Pressure [bar]
H1C	6.1-225.1	350
SH11C	10.3-178.1	430

Gear Pumps,	
Fixed Displacement, Open Loop	

Displacement Max Pressure [cc/rev] [bar] Range OT groups 1 - 2 -3 0.73 – 90 270 4.1 – 30 270 Hercules group 2 Silent plus group 2 4.1 – 30 250

Brevini[™] Valves



Pre-Compensated Directional Control Valves

Range	Inlet Flow [l/min]:	Max Pressure [bar]
HPV 41- 77-310	160-250-600 (*)	370-370-370
(*) = per Inlet Section		



CETOP Valves

Range	Inlet Flow [I/min]	Max Pressure [bar]
Size 2 (NG4) – Size 8 (NG25)	up to 600	up to 400



Bankable Valves

Pressure	Range	Max Flow [l/min]	Туре
bar]	CDC3 - CD3M - CD3 -	22	
370-370 CDH3 - CD5		80	ON / OFF
	CX3 - CXQ3 - CXDH - CFS3	55	Proportional

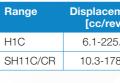
Brevini[™] Motors





Axial Piston Motors, Variable Displacement, Bent Axis

Range	Displacement [cc/rev]	Max Pressu [bar]
SH7V/VR	61-216	430
SH9V	62-216	430













Orbital Motors, Gerotor and Roller

Range	Displacement [cc/rev]	Max Pressure [bar]
BGM, BG	13-400	225 / 165
AR, BR, BRZV	50-400	175
HR, HT	80-500	210

Range	Displacement [cc/rev]	Max Pressure [bar]
OT groups 1 - 2 - 3	0.73 – 90	260
Hercules gr 2	4.1 – 30	270

Brevini[™] Power Units

Mini Powerpacks

Range

MC

FP

DTR

MK



Motorpumps

Туре	Range	
With 4 cavities for single and double acting circuits	EP	W and
With flexible design thanks to multiple valve seats. Several circuits layout available	MP	W and
Custom mini powerpacks for telescopic dock levellers		
Custom mini powerpack for hanged/swing lip dock levellers		



Axial Piston Motors, Fixed Displacement, Bent Axis

nent v]	Max Pressure [bar]
5.1	350
8.1	430

Gear Motors, Fixed Displacement



Туре Vith Ø115 motors d gr. 1 gear pumps With Ø80 motors l gr. 0.5 gear pumps

Range	Туре
FR	Micro Powerpack for space demanding applications, 4 cavities for single and double acting circuits
FW	Micro Powerpacks for double acting circuits with reversible pump

Micro Powerpacks

Product Portfolio

Brevini[™] Sensoring and Control



Solenoid Valve Drivers

Levelling Control Units

Туре

GP200

IDXYmp-ID3

Туре	Description
MAV1152	Control unit for one proportional and up to 5 ON/OFF directional valves
MAV4211	Control unit for up to 4 proportional bidirectional valves

Description

Outriggers / stabilizers self levelling

controlle Single or dual axis ON/OFF self

levelling



Туре Description Control unit for pumps, motors and hydrostatic MAV4211SH transmissions control

Electronic Control Units

Axis On-Off / PWM

ON/OFF

ON/OFF

2

1-2

Туре	Description	
M92	Pre programmed limitation controller	

Brevini[™] Sensoring and Control



Angle / Tilt Sensors

Туре	Description	Axis	Range
IDXYm- p-MKII	Double axis (X-Y) programmable tilt switch	1-2	±20
IDXYmp- ID3-MKII	Double axis programmable tilt switch	1-2	±20
TAC MKII	Single axis inclinometer	1	90-180- 270-60
SP MKII	High accuracy double axis inclinometer	1-2	±20



Туре	Description	Maximum displacement [n
AS-TL	Aluminum enclosure. High accuracy lengh measurment. Integrated angle sensor (optional)	12.5
ASu55-TLu66	Low profile body. High accuracy length measurment. Integrated angle sensor (optional)	5
ASu-TLu	Compact body. High accuracy length measurment. Integrated angle sensor (optional)	5.5



Load Sensors

Туре	Description	Load range [kg]	Integrated amplification
TT	Shear beam load cell	350 - 10.000	Optional
TPE	Pin load cell	200 - 100.000	Optional
TC	Compression load cell	200 - 100.000	Optional
TR	Traction load cell	500 - 50.000	No
TAN	Ring load cell	500 - 3.000	No



Pressure Sensors

Туре	Description	Range [bar]	Output
TPV	Single pressure transducer	0-250 0-400	0.5-4.5 V
TPA	Single pressure transducer	0-250 0-400	4-20 mA
TPA	Doublele pressure transducer	0-250	4-20 mA 20-4 mA

Integrated **System Solutions**

With decades of experience providing customized packages for highly specialized applications, we can deliver complete, integrated solutions with the enhanced performance, packaging optimization, and reduced maintenance requirements that can help improve your bottom line.





We use this bank of expertise to understand the specific needs of each individual customer and then design, manufacture, and deliver a customized product solution that meets the precise needs of your unique application.

Customized **Product Solutions**

The Dana Industrial business team has many years of commercial and technical experience gathered from every market and application around the world.

Dana Industrial Business Bulk Materials

Dana provides high-performance solutions for mobile and stationary equipment used in the bulk material handling sector.

Dana delivers turnkey projects as well as new components, upgrades, and rebuilds. We offer consulting services, systems design, engineering, procurement, installation, and support.

We support bulk material applications and self-propelled machines with planetary gearboxes, helical and bevel helical gearboxes, and winches. We also provide advanced solutions for critical power systems commonly used in low-speed power-transmission applications.

Driven by a talented team of engineers focused on innovation, Dana delivers proven, reliable technology from standardized products to customized solutions engineered specifically for customer needs.

Customization Excellence

Stacker Reclaimers

These versatile machines operate as both stackers and reclaimers, stacking material in stockpiles and reclaiming loads with a bucket wheel at the end of the boom. Often less costly than maintaining a fleet of dozers, stacker reclaimers move in three directions: horizontally along the rail, vertically by lifting the boom, and rotationally by slewing its boom.





Dana Industrial Business **Heavy Industry**

Dana provides a complete range of mechanical transmissions products to meet numerous requirements in heavy industry.

Our deep experience across all the heavy-industry market segments combined with a broad selection of technologies enable Dana to fulfill the requirements for the most diverse applications.

Initial consulting, design, and engineering are essential in supporting heavy-industry sectors such as steelmaking, sugar processing, and cement production.

Our custom-developed solutions and aftermarket support are essential for enterprises looking for reliable, efficient solutions.

Customization Excellence

Edging

Typically used at the start of the rolling process, edging drives are used to reduce the width of steel slabs.



APPLICATIONS

1













Ball / Rod Mills



















Roller Presses



21

Dana Industrial Business Onshore Marine

Products developed for onshore applications include solutions for ship-to-shore (STS) cranes, rubber tyre gantry (RTG) cranes, rail-mounted gantry (RMG) cranes, harbor cranes (MHC and GHC), shiplift systems, reach stackers, and straddle carriers.

We design and manufacture fully integrated drive and motion products for all types of harbor cranes and other equipment used in the onshore marine sector. Our product portfolio includes planetary and helical gearboxes, winches, winch drives, cardan shafts and electronics.

Our planetary drives, helical gearboxes, and cardan driveshafts operate around the clock to load and unload enormous containers shipside as well as in stocking and handling areas.

Customization Excellence

Rubber Tyred Gantry (RTG) Cranes

Dana works with the leading OEMs of port handling equipment around the world.





Dana Industrial Business Offshore Marine

Offshore applications covered by our range of solutions include cable- and pipe-laying vessels, cargo ships, subsea systems, oil platform equipment, remotely operated vehicle (ROV) launch and recovery systems, and more.

We supply products for lifting, pulling, and slewing machinery used in various marine and offshore applications, such as cranes, dredgers, gangways, anchor and mooring winches, and hatch covers. Additionally, our gearboxes are used on lifeboats.

Our extensive lineup of Brevini[™] planetary gearboxes and slewing gear drives are engineered with the reliability and durability needed to deliver optimal performance in the harsh temperatures and weather common to marine applications.

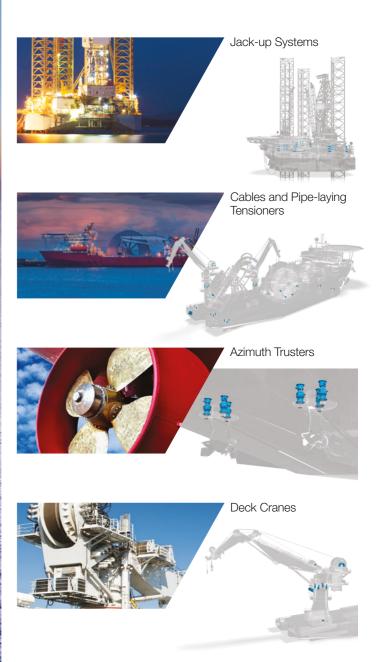
CONTRACTOR OF

Customization Excellence

Cable-Laying Vessel

Dana can serve as a single supplier for the complex variety of products and applications used on cable-laying vessels.





Dana Industrial Business Environmental and Renewable Energy Applications

Dana embraces the movement toward a sustainable planet with environmentally friendly technologies and solutions for this emerging industry.

Dana offers a complete range of solutions used in applications for the environmental, renewable energy, and recycling industries. We leverage our experience gained since the initial emergence of these segments to provide solutions for biogas plants, water treatment systems, renewable energy applications, recycling shredders, and wind turbine nacelle cranes.

Customization Excellence

Agitator for Biogas Plant

As the paddles were conceived to run at a peripheral speed of 132 m/minute covering a stirring diameter of 4 meters, we felt it was necessary to integrate a flange shaft into each gearbox, providing additional strength and operational safety. A short delivery schedule plus a tailored service and warranty concept for shortnotice repairs helped us clinch the deal.

APPLICATIONS











Dana Industrial Business Stationary Equipment

Dana has the extensive knowledge needed to provide the efficiency, reliability, and sustainability required by stationary applications used throughout the industrial sector.

Dana provides numerous solutions for stationary equipment used in material-handling, construction, food processing, and many other sectors. We leverage synergies with our mobile business to supply tailored solutions that optimize performance and reduce the total cost of ownership.

Customization Excellence

Tower Crane

Used extensively in the construction industry, tower cranes provide the best combination of height and lifting capacity. Our full range of specifically designed gearboxes are used for transport, slewing, hoisting, and luffing.







Dana Industrial Business **Plastic and Rubber Industry**

With more than a thousand extruder drives installed around the world, Dana has significant expertise in applications for the plastic and rubber market segments. Built for reliability, our gearboxes deliver high efficiency and superior sound attenuation, with aftermarket support that optimizes performance over the long term.

Our portfolio for plastic and rubber applications is anchored by the proven Brevini[™] and PIV[™] brands. We offer single- and twin-screw extruder drives, rack and pinion drives for injection molding machines, planetary gearboxes, and helical and bevel helical gearboxes.

Customization Excellence

Twin Extruders

A leading Japanese machine tool manufacturer enlisted us for a solution for 28 extrusion machines used in plastic and chemical compounding applications. Our PIV[™] Positwin twin-screw extruder drives backed by our prompt after-sales service capabilities support the round-the-clock, high-speed performance essential for maximizing production.

APPLICATIONS









Machines



Blow Film Machines





Injection Molding Machines





Blow Molding Machines







Market-Driven Off-Highway Innovation

About Dana Incorporated

Over 39,000 Dana dreamers in over 30 countries drive mobility and transportation forward — wherever the road, or offroad, takes our customers and communities.

A leader in the design and manufacture of propulsion and energy-management solutions, Dana powers vehicles and machines in all mobility markets across the globe. Delivering groundbreaking drive systems. Advancing revolutionary motion technologies. Championing leading-edge power management innovations across thermal technologies for e-Propulsion; controls and software; battery management systems; and fuel cell plates. With a balanced portfolio — including complete in-house electrification capabilities — Dana provides classleading products and systems supporting traditional, hybrid, and EV manufacturers. **Everywhere**.

Dana-industrial.com/contact-us

Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

