

**AMERICAN BUREAU OF SHIPPING  
06/Oct/2014 APPROVED FORGING FACILITIES**

COUNTRY

<u>NAME AND LOCATION</u>	<u>PRODUCT TYPE</u>	<u>GRADE</u>	<u>FORGING THICKNESS</u>	<u>FORGING WEIGHT</u>	<u>FORGING PROCESS</u>	<u>MELTING PRACTICE</u>
<u>AUSTRIA</u>						
Boehler Schmeidetechnik GmbH & Co. , KG, Kapkenberg	Steel, Nickel & Aluminum Machinery Forgings	Non-ABS	-	500 kg	ODF, CDF, Drop forge	-
Schmiedetechnik Breitenfeld GmbH <i>Bars, Discs, Blocks, Rings</i>	Steel Forgings	Non-ABS	-	5,000 kg	ODF	-
<u>BELGIUM</u>						
ARCELORMITTAL RINGMILL SA , SERAING <i>GEARS AND WHEELS</i>	STEEL FORGINGS	NON ABS	500 MM THK , DIA 4.500 MM	4,500 KG	RING ROLLING	-
Hertecant Flanges N.V <i>Differnt type of Flanges , welding ring collar</i>	Steel Machinery	Non ABS	-	250 Kg	CDF -Drop Forge	-
<u>BOSNIA AND HERZEGOVINIA</u>						
Mittal Steel Zenica D.O.O.. Zenica	Steel Forgings	Non-ABS	-	10,000 kg	ODF, Roll Forging, Hydraulic Press	-
<u>CANADA</u>						
Patriot Forge Inc., Brantford, Ontario	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	18,000 kg (40,000 lbs)	ODF, Roll Forging	-
<i>*Bars, Shafts, Open Die Rings &amp; Discs, Squares &amp; Rectangles, Sleeves, Pots &amp; Die Forgings, Seamless Rolled Rings.</i>						

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<u>CANADA</u>						
Patriot Forge Inc., Paris, Ontario	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	18,000 kg (40,000 lbs)	ODF, Roll Forging	-
<i>*Bars, Shafts, Open Die Rings &amp; Discs, Squares &amp; Rectangles, Sleeves, Pots &amp; Die Forgings, Seamless Rolled Rings.</i>						
<u>CZECH REPUBLIC</u>						
Brk Am Spol S.R.O., Zamrsk	Carbon , MN , Alloy Steel Forgings	NON ABS	-	6,500 Kg	Seamless Rolled Forgings	-
<i>Bearings, Seamless rolled Rings , Rotary Symetrical Forgings</i>						
Czech Precision Forge A.S., Praha	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	4,000 KG (ODF), 600 kg (CDF)	ODF, CDF	-
<i>*Shaft, Wheel, Connecting Rod, Piston Rod, Piston Crown, Cylinder Cover, Crankshaft, Gear, Collar, Valve Body, Seat</i>						
PBK ZK Klando	Mooring Chain Accessories	Non-ABS	-	800 kg	ODF, CDF	-
Pilsen Steel S.R.O., Pilsen	Steel Forgings*	Non-ABS	-	73,600 kg	ODF	-
<i>*Rudder Stock Assembly. Crankshaft, Propeller Shaft, Ship Shaft, Main Shaft</i>						
Poldi Hutte s.r.o., Klando	Steel Forgings*	Non-ABS	-	4,000 kg	ODF	-
<i>*Round Bar, Square Bar, Flat Bar, Shaft</i>						
Sochorova Valcovna TZ .A.S	Propeller Shafts etc	NON ABS Rolled bar Stock	260mm Round Bars, 230mm Sqr Bars	-	-	-
Vitkovice Hammering A.S Ostrava	Steel Forgings	Non ABS	-	8,000 kg	Radi al Forging	-
<i>Forged bars ( Round Sqaure, Rectangular , Octagonal</i>						

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<u>CZECH REPUBLIC</u>						
Vitkovice Heavy Mavhinery A.S Ostrava	Low Alloy Steel Forged Crankthrows	Non ABS	-	3,000 kg	Drop Forging, Block Forging	-
Vitkovice Heavy Mavhinery A.S Ostrava	Carbon, C-Mn & Low Alloy Steel Forgings*	Non ABS	-	120,000 kg	ODF	-
<i>*Crankshaft, Propeller Shaft, Intermediate Shaft</i>						
ZDAS a.s.	Steel Forgings*	Non-ABS	-	9,000 kg	ODF	-
<i>*Shaft, Wheel, Connecting Rod, Piston Crown</i>						
ZVU Kovarna a.s., Hradec Kralove	Caron & Alloy Steel Forgings*	Non-ABS	-	2,000 kg	ODF, Rolled Forging	-
<i>*Ring, Flange, Disc, Bushing, Forged Sections (T, Y, L)</i>						
<u>FINLAND</u>						
Komas Oy	Stell Forgings	Non ABS	/	4,000Kgs	ODF	/
<i>Forgins for gear wheels, shafts ,pinions</i>						
Ovako Imatra OY AB ,Imatra	Rolled Bar	Non ABS Steel Grades, Carbon, Carbon Manganeese an	As Rolled 20 mm to 200 mm	30,000 kg	Forge rolling	EAF

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<u>FRANCE</u>						
Akers Thionville <i>*Bloom, Bar, Shaft</i>	Machinery Steel Forgings*	ABS Grade 2, 3, 4, 4C, A1, A15, Non ABS	1,300 mm	30,000 kg	ODF	-
Areliers Desw Janves, Sur-Meuse <i>Connecting Rods</i>	Steel Forgings	Non ABS	-	10KG	CDSF	-
Ascometal, Usine des Dunes, Dunkerque <i>*Billet, Peeled Bar, Rolled Black Round</i>	Carbon, C-Mn, Low & High Alloy Steels*	Non-ABS	70 - 300 mm	-	Roll Forging	-
Forges de Bologne <i>*Roller</i>	Aluminum	Non-ABS	-	315 kg	ODF, Drop Forging	-
Forgital Dembiermont S.A.S <i>Seamless Rolled Rings</i>	Steel Forgings	Non ABS	/	45,000 Kgs	Rolled Forgings	/
Forgital FMDL , S.A.S.Chambon <i>Flanges, Fittings , Tubes , Rings,Dscs,Blocks</i>	Steel Hull & Machinery Forgings.	NON ABS	-	18,000KG	ODF,Ring Rolling	-
L'Union Des Forgerons, Mereville <i>*1,000kg(Stainless &amp; Alloy Steels), **300kg (Aluminium Alloys)</i>	Steel & Aluminium Forgings	Non-ABS	-	1,000 kg*, 300 kg**	ODF, Ring Rolling	-
Manoir Industries Division Gerlach, Bouzonville <i>*Turbine Disc, Conrod, Shaft, Valve Body, Choke Body, Ram, BOP, Clamp</i>	Steel Forgings*	Non-ABS	-	900 kg	CDF, Extrusion	-

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<u>FRANCE</u>						
Special Brides Service Boen  <i>Flanges , Fittings , Rings</i>	Machinery Steel Forgings and Ti and Al forgings	Non ABS	500 mm Thk /2500mm Dia	1,000KGr	ODF Drop Forge, Closed ,Rolled Forgings	-
<u>GERMANY</u>						
Anker-Schroeder.De. ASDO GmbH, Dortmund	Steel Forgings*	EN10083-1, 34CrNiMo6 / ABS Grade R4	150 mm	450 kg	ODF	-
<i>*Semi-Finished Mooring Shackle for ABS approved accessory manufacturer (Schmiedestuck--Vertrieb Feuerstein)</i>						
Bahntechnik Brand-Erbisdorf GmbH	Steel Forgings	Non-ABS	-	3,500 kg	ODF	-
BGH Edelstahl Lippendorf GmbH	Carbon, C-Mn, Low Alloy & Stainless Steel Forging*	Non-ABS	-	10,000 kg	ODF	-
<i>*Shaft, Disc, Bush, Tube, Ring, Bar</i>						
BGH Edelstahl Siegen GmbH	Steel Forgings*	Non-ABS	-	32,000 kg	CDF, ODF	-
<i>*Semi-finished forgings / Forged steel bars</i>						
Brueck GmbH, Ensheim <i>*Manifold Base, Rings, Bearing Housing, Tower King Pin, Hollow Forging (Carbon/C-Mn Steel, Alloy Steel and Stainless Steel)</i>	Steel Forgings*	Non-ABS	4.6 m (ODF/CDF), 6.4 m (Ring Rolling)	50000 kg (ODF/CDF) 35000 kg (Ring Rolling)	ODF, CDF, Ring Rolling	-
Buderus Edelstahl GmbH	Low Alloy Steel Forgings*	Non-ABS	-	64,000 kg	ODF	-
<i>*Bar, Block, Flange, Shaft</i>						

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<u>GERMANY</u>						
Edelstahl Rosswag GMBH <i>Shafts , Gears , Rings</i>	Ferrous & Non Ferrous Forgings	Non ABS	300 mm	5,000KG	ODF , Ringrolling	-
Goeg Unformtechnik GMBH, Willforth	Steel Forgings	Non ABS	-	700KG	CDF	-
Group Karl Diederichs KG, Remsheid <i>*Shaft, Ring, Block, Bar</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	35,000 kg	ODF, Seamless Ring Rolling	-
GUstav Grimm Edlstahl werk GMBH, Schmeid <i>Bars , Discs, Rings ,Shafts, forged Tubes</i>	Ferrous and Non Ferrous	Non ABS	-	10.5 Tons	Open Die , Drop Forging,, Cold Forging	-
Hammerwerk Erft GMBH	Marine & Offshore Forgings /Rolled Rngs	Non ABS	4,000mm Dia Forged / Rolled Rings	200,000kg ( Open Die)	ODF , Rolled Ring	.
Hammerwerk Fridingen GmbH, Fridingen/Donau	Steel Forgings	Non-ABS	-	80 kg	Drop Forging & Hot Pressing	-
Hammerwerk Fritz Baumann GmbH & Co. KG, Gueglingen <i>*Shaft, Disc, Ring, Forgings for Gears, Gear Boxes, Clutches</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	2,000 kg	ODF, Drop Forging & Ring Rolling	-
Kollmeder Sghmiede _ Und Presswerk GMBH <i>Componets for pressure Vessels, gearstransmissions, wind turbines etc</i>	Ferrous & Non Ferrous Alloy Forgings	non ABS	-	16,000kg	Seamless Rolled , ODF.CDF	-

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<u>GERMANY</u>						
MAHLE Brockhaus GmbH, Plettenberg <i>*Connecting Rod</i>	Steel Forgings*	Non-ABS	-	10 kg	CDF	-
Maschinenfabrik Alfing-Kessler GmbH	Steel Hull & Machinery Forgings	Non-ABS	-	15,000 kg	CDF, ODF	-
Rothe Erde GmbH	Steel Forgings	Non-ABS	-	29,000 kg	Ring Rolling	-
Saarschmiede GMBH	Steel Forgings	non ABS	-	150,000 kg	ODF	-
Schmiedag GmbH & Co., KG <i>*Crank Shaft, Connecting Rod</i>	Steel Machinery Forgings*	Non-ABS	-	500 kg	CDF	-
Schmiedetechnik Hammerwerk Carl Vorlaender GmbH, Chenbach <i>Gear, Flange, Shaft, Crankshaft, Valve Components, Compressor Components, Turbine Components,</i>	Carbon, C-Mn, Low Alloy & Stainless Steel Forgings	Non-ABS	-	6,000 kg	ODF / Ring Rolling	-
Schmiedewerke Groeditz GmbH <i>*Crankshafts (Grade 42CrNiMo4) up to 21,000 kg.</i>	Steel Machinery Forgings*	ABS & Non-ABS	-	55,000 kg	ODF, CDF, Ring Rolling	-
Siepmann -Werke GMBH & Co,KG <i>Tubes , Cylinders ,Rings,Hubs,Discs,Shafts,Valves</i>	Steel Forgings	Non ABS	-	15,000 kg	CDF	-
SSK Von Schaewen GmbH & Co., KG, Plant Hueckeswagen	Steel Machinery Forgings	Non-ABS	-	20,000 kg	ODF	-

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<u>GERMANY</u>						
SSK Von Schaewen GmbH & Co., KG, Plant Wetter	Steel Forgings	Non-ABS	-	38,000 kg	ODF	-
Stahlhammer Bommern GmbH	Steel Forgings	Non-ABS	-	2,500 kg (ODF), 600kg (Drop Forging)	ODF, Drop Forging	-
Stahlwerk Augustfehn Schmiede GMBH & Co.KG	Machinery Steel Forgings	ABS Approved	-	6,000 kg	ODF	-
Wildauer Schmiedewerke GmbH & Co. KG	Steel Forgings*	Non-ABS	-	3000kg	CDF	-
<i>*Crankshaft, Connecting Rod, Voith Blade</i>						
<u>HUNGARY</u>						
Hamor ZRT <i>rolled and forged rings ,Tubes ,Shafts ,Discs</i>	Steel Forgings	Non ABS	/	5,000kgs	ODF , Rolled Forging	/
<u>INDIA</u>						
Ahmednagar Forgings Ltd., Pune	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	100 kg	CDF	-
<i>*Connecting Rod, Fork, Blade</i>						
Bay-Forge Ltd., Kanchipuram District	Carbon, C-Mn, Low Alloy & Stainless Steel Forging*	Non-ABS	-	20,000 kg	ODF & Seamless Ring Rolling	-
<i>*Shaft, Disc, Bush, Cylinder, Hub, Ring</i>						

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<u>INDIA</u>						
Bharat Forge Ltd., Pune <i>*Crankshaft, Connecting Rod, Shaft, Gear Blank</i>	Machinery Steel Forgings*	Non-ABS	-	17,500 kg (ODF) / 500 kg (CDF)	ODF, CDF	-
Harihar Alloys (P) Limited, Tamil Nadu <i>*Studded Tee, Flange</i>	Low Alloy Steel Forgings*	Non-ABS	-	1,500 kg (ODF) / 350 kg (CDF)	ODF, CDF	-
Kran Radar (A Division of Western India Forgings Pvt. Ltd.), Pune <i>*Gear Blank, Shaft, Ring, Tubular, Flange</i>	C-Mn, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	4,000 kg (ODF), 150 kg (CDF)	ODF, CDF	-
Kunj Forgings Pvt. Ltd., Ghaziabad <i>*Flange, Ring, Blind, Hollow-Bar, Round Bar</i>	Austenitic Stainless Steel Forgings*	Non-ABS	-	5,000 kg	ODF, CDF	-
Mahindra Forgings Ltd., Pune <i>*Low Alloy Steel (Crankshaft, Connecting Rod - Blade, Fork).</i>	Steel Forgings*	Non-ABS	-	50 kg	CDF	-
SEFORGE Limited, Gujarat <i>*Flange, Ring</i>	Carbon, Low Alloy & Stainless Steels*	Non-ABS	-	4,500 kg	Ring Rolling	-
Vikrant Forge Limited, Kolkata <i>*Shafts, Gear Blanks, Cylindrical Shape, Pinions. Raw Material Source - Arcvac Forgecast Ltd., India</i>	Steel Forgings (C, C-Mn and alloy steel) *	Non-ABS	-	6000 kg	ODF	-
Viraj Profiles Limited, Thane <i>*Flange, Round Bar, Angle, Flat, Channel</i>	Stainless Steel Forgings*	Non-ABS	3 - 914 mm	1,200 kg	ODF / CDF / Rolled Forging	-

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<u>ISRAEL</u>						
Blades Technology Ltd	Blades for Diesel Engine Turbo chatgers	Non ABS	100mm-400 mm (Length ) X2.4mm ( cross section)	0.5Kg -3.5 Kg	CDF	-
Carmel Forge Ltd.	Nickel, Ni/Co, Titanium, Steel Forgings*	Non-ABS	450 mm	50 kg	ODF, CDF	-
<i>*Turbine Disks, Compressor Disks, Blisks, Impellers</i>						
<u>ITALY</u>						
Acciaerie Valbrun SPS , Vicenza <i>Rolled Bar Stock</i>	Stainless Steel	Non-ABS	250 Mm Dia	-	Rolling mill	EAF
Acciaierie Bertoli Safau	,Rolled bar Stock , carbon, Alloy Steels	Non ABS	max Dia 240 mm	/	Rolling Mill	EAF
Acciaierie Valbruna SPA , Vicenza <i>*Rolled Bar Stock</i>	Stainless Steel*	Non-ABS	250 Mm Dia	-	Rolling mill	EAF
ASFO S.p.A., Chiuppano	Steel Forgings	Non-ABS	-	10,000 kg	ODF, Ring Rolling	-
ASO Siderurgica S.R.L , Unipersonale	Steel Forgings	ABSW / NON ABS	Rnd Bar 880MM, Sqr Bar 760x760 Mm 12 meters Long	36,000Kg	ODF	-
Bertot Cirie'	Hull & Machinery Forgings	Non ABS	-	140 Kg	CDF	-

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<u>ITALY</u>						
Dalmine S.P.A. <i>*Cylinder</i>	C-Mn & Low Alloy Steel Forgings*	Non ABS	-	5,000 kg	ODF	-
FACS Fucine S.R.L., Pavia di Udine	Carbon, C-Mn & Low Alloy Steel Forgings	Non-ABS	-	19,000 kg	ODF, CDF	-
FEAT GROUP S.P.A. , CESANA BRIANZA	HULL & MACHINERY	NON -ABS	-	100 kg	CDF	-
FOC Ciscato S.P.A. <i>*Pinion, Gear, Wheel, Connecting Rod, Shaft Coupling, Steering Pipe, Rudder Hub, Plate</i>	Steel Forgings*	Non-ABS	1,000 mm	40,000 kg	Roll & Drop Forging, CDF	-
Fogia di Bollate (FDB) S.p.A., Canneto <i>*Ring</i>	Carbon, C-Mn, low Alloy & Stainless Steel Forging*	Non-ABS	-	6,200 kg	ODF / Ring Rolling	-
FOMAS SPA , OSNAGO, ITALY	Steel Machiniery	Non ABS	-	65,000KG	ODF	-
FOMECC, S.P.A.	Steel Forgings	Non-ABS	-	24,000 kg	ODF	-
Forge Monchieri SpA, Cividate Camuno <i>*Shaft, Ring, Bush, Flange, Disc</i>	Steel & Titanium Forgings	Non-ABS	6,000 mm	120,000 kg	ODF, Ring Rolling	-
Forgerossi Spa, Vicenza <i>*RR- Rolled Rings</i>	Steel Forgings	Non-ABS	-	15,000kg (Bars), 13,000kg (Discs), 12,000kg (RR)*	ODF, CDF, Ring Rolling, Drop Forging	-

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<b><u>ITALY</u></b>						
Forges S.P.A , Udine <i>Gears, Compressors , Pumps, Valves, I Turbines</i>	Steel Forgings	NON ABS	-	40,000 kg	ODF	-
Forgia Rapida, Bologna	Machinery Steel	Non ABS	-	3,500 KGS	ODF, Drop Forging	-
Forgia Rezzatese S.R.L., Unipersonale, Brescia <i>*Bar, Disc, Flange Shaft, etc.</i>	Carbon & Alloy Steels*	Non ABS	-	10,000 kg	ODF	-
Forgiatura San Giorgio SPA	Steel Forgings	Non-ABS	-	3,500 kg	ODF	-
Forgiatura Mame' S.p.A., Brescia <i>*Ring, Bushing, Flange, Disk, Eccentric and Transmition Shafts, Die Block</i>	Steel Forgings*	Non-ABS	-	35,000 kg	ODF, Ring Rolling	-
Forgiatura Marcora SNC <i>*Fan Shaft, Rudder Stock, Cross Beam, Hub, Sliding Wheel, Gear, Block, Rotor</i>	Steel Forgings*	Non-ABS	1,300 mm	8,000kg	ODF	-
Forgiatura Moderna Arese S.p.A., Milano <i>*Shaft, Flange, Ring, Bush, Disc, Wheels, Block, Plate</i>	Steel Forgings*	Non-ABS	8,000 mm	75,000 kg	ODF, Ring Rolling	-
Forgiatura Morandini S.r.l., Cividate Camuno, Brescia <i>*Rudder Stock, Gear Pinion, Gear Wheel, Diesel Engine &amp; Shaft Arrangement Components</i>	Steel Forgings*	Non-ABS	-	150,000 kg	ODF, Ring Rolling	-
Forgiatura San Giorgio S.P.A <i>Open die Rings , disks ,bar and shafts sleeves</i>	Steel Forgings	Non ABS	/	3,500 Kgs	ODF & Drop Forging	/

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<u>ITALY</u>						
Forgital Italy S.p.A., Seghe, Vicenza	Steel Forgings	Non-ABS	*	30,000 kg	CDF, Ring Rolling	-
Franchini Acciai S.p.a., Brescia	Steel Hull & Machinery Forgings	Non-ABS	-	30,000 kg	ODF	-
Friulforgia s.r.l., Sedegliano	Steel Forgings*	Non-ABS	*	25,000 kg	ODF	-
<i>*Shaft, Propeller, Intermediate Shaft, Pitch Control, Flange, Ring, Bush</i>						
Gasparini , Spinetta <i>Components for oilgas , valves large gear components , forging bfor pressure vessel mfn etc</i>	Steel Forgings	NON ABS	-	30.00Kg ( 3500 Kg Rolled Rings )	ODF , Rolled Forgings	-
Industria Metallurgica Odobez s.r.l.	Steel forgings for marine and offshore application	Non-ABS	-	10,000KG	ODF	-
IRE-OMBA S.p.A., Bergamo <i>Rectangular Section Rings.</i>	Steel Forgings	Non-ABS	ID: 200mm; OD: 4000mm	4,000 kg	ODF, Ring Rolling	-
Lucchini RS S.P.A.	Machinery & Offshore Forgings	Non ABS	.	40,000KG	ODF	.
Metalcam SPA <i>*Ring, Disc, Hollow, Shaft</i>	Carbon, C-Mn, Alloy & Stainless Steels*	Non ABS	-	22,000 kg	ODF	-
Metallurgica Siderforge, Cogollo Del Cengio( VC )	Valve Bodies and components, connecting rods	Non ABS	Rolled Rings 2,500 Mm, Closed die 1,200 mm,Discs	5,000 Kg	Ring Rolling and CDF	-

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<u>ITALY</u>						
Nicola Galperti & Figlio spa, Gera Agata <i>*Bar, Disk, Block, Ring</i>	Steel Forgings*	Non-ABS	-	6,000 kg	ODF, CDF, Ring Rolling	-
Nuova CMF SRL, Cormons <i>*Propeller Shaft, Couplings, Pitch Control Shaft, Crank Pin, Bush</i>	Steel Forgings*	Non-ABS	600mm	10,000 kg	ODF	-
Ofar S.p.a., Visano, Brescia	Forgings	Non-ABS	-	50,000 kg	ODF	-
Officine Ambrogio Melesi & C . S.R.L. ,Cortenova <i>Flanges,Rings , Tube Sheets , Ball Valve Comp</i>	Copper & Steel Forgings	NON ABS	-	10,000 kg	ODF, Drop , CDF , Rolled	-
Riganti S.P.A.	Steel Forgings	Non ABS	-	1,500 kg	ODF, CDF	-
Ringmill S.P.A. <i>Shaft, Flange, Rack Pinion, Nozzle</i>	Carbon, C-Mn, Low Alloy & Stainless Steel Forgings	Non-ABS	-	25,000 kg	ODF & Ring Rolling	-
Sesia Fucine	Steel Forgings	Non-ABS	-	10,000 kg	ODF & Ring Rolling	-
Special Flanges SRL , Cesano Maderno <i>discs , rings ,flanges shafts ,Plates ETC</i>	Steel Forgings	NON ABS	-	30,000 kg	ODF	-
Valforge S.R.L. ,Corteova <i>Discs, Rings , Cylanders , Shafts ,and rounds and Blocks .</i>	Steel Forgings	Non ABS	-	6,000 kg	ODF	-

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<u>JAPAN</u>						
Nippon Steel Sumitomo Metal Corporation Osaka Steel Works , Osak	Machinery Steel Forgings	ABS & Non-ABS	-	1500 kg**	ODF, CDF	-
<i>* 800kg - Crankshafts, **199kg - Titanium Alloy Forging</i>						
Chikara Kogyo Co., Ltd.	Steel Forgings	ABS & Non-ABS	-	1,000 kg	ODF / CDF	-
Dowa Forging Co , Ltd	Stell and Alloy Forgings	ABS and NON ABS	-	5,000 KG	ODF	-
Furukawa-Sky Aluminum Corporation, Oyama Factory	Aluminum Alloy Forgings for Machinery	ABS & Non-ABS	500mm Th. x 1,000mm Dia	Free Forging 3,000kg, Die 1,000kg	Free Forging & Die Forging	-
Hakuro Forging Co., Ltd.	Hull & Machinery Stainless Steel Forgings	ABS & Non-ABS	-	8,000 kg	ODF	-
Hatakeyama Iron Works Co., Ltd., Tokyo	Carbon & Low Alloy Steel Forgings	ABS & Non-ABS	-	10,000 kg	ODF	-
Howser Co., Ltd., Nogata	Carbon & Low Alloy Steel Forgings	ABS & Non-ABS	-	4,000 kg	ODF, CDF, Ring Rolling Forging	-
Japan Casting & Forging Co., Ltd.	Hull & Machinery Forgings	ABS & Non-ABS	-	300,000 kg	ODF, Ring Rolling	-
Kansai Tekko Co., Ltd., Hyogo	Machinery Steel Forgings	ABS & Non-ABS	1,400 mm	15,000 kg	ODF	-
Kobe Steel Ltd., Daian Plant, Mie	Machinery Aluminum Alloy Steel Forging	Non-ABS	1,300 mm (RF)	1,500 kg	ODF, CDF, Ring & Cold Forging	-

*\*RF- Ring Forging*

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<u>JAPAN</u>						
Kobe Steel Ltd., Takasago	Hull, Machinery & Stainless Steel Forging	ABS & Non-ABS	3,000 mm	400,000 kg	ODF, CDF, Ring Rolling	-
Metalforge Corporation, Miyazaki <i>Diesel engine parts</i>	Machinery Steel Forgings	Non-ABS	300 mm	200 kg	CDF	-
Miki Forging Co., Ltd., Osaka Works	Machinery & Stainless Steel Forgings	ABS & Non-ABS	2,500mm (RR)	3,000 kg	ODF, Ring Rolling	-
Mitsubishi Heavy Industries Ltd., Ind. Mach. Business, Tech & Sol Div.	Machinery & Stainless Steel Forgings	Non-ABS	-	50,000 kg	ODF	-
Miyazaki Iron Works Co., Ltd.	Machinery Steel Forgings	ABS & Non-ABS	2,500 mm (RR)	5,000 kg (ODF), 2,000 kg (RR)	ODF, Ring Rolling	-
Murayama Tanzosyo Co., Ltd., Niigata	Carbon, Low Alloy & Stainless Steel Forgings*	ABS & Non-ABS	-	1,300 kg	ODF, CDF	-
* Naito Tanzosho Co., Ltd., Kurate-gun, Fukuoka Pref.	Hull & Machinery Forgings, Stainless Steel	ABS & Non-ABS	2,000mm	5,000kg (Steel), 2,000kg (Stainless Steel)	ODF, Ring Rolling	-
Nippon Koshuha Steel Co., Ltd., Toyama	Low Alloy & Stainless Steel Machinery Forgings	Non-ABS	1,500 mm	27,000 kg	ODF	-
Ohmi Press Works & Forging Co., Ltd., Shigaraki Plant	Machinery & Stainless Steel Forgings	ABS & Non-ABS	5,000mm (RR)	25,000 kg	ODF, Ring Rolling	-

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<u>JAPAN</u>						
Okamoto Iron Works Co.	Machinery & Stainless Steel Forgings	ABS & Non-ABS	-	25,000 kg	ODF	-
Onohara Iron Works Co., Ltd., Nogata City	Carbon, Alloy, Stainless Steel Forgings	ABS & Non-ABS	-	Carbon, Alloy Steel 3,000kg/ Stainless 2,000kg	ODF, CDF	-
Pacific Steel Mfg., Co., Ltd., Toyama Works	Steel Machinery Forgings	ABS & Non-ABS	-	44,000 kg	ODF	EAF
Riken Forge Co., Ltd., Gunma	Machinery Forgings	ABS & Non-ABS	-	120 kg	CDF, Drop, Impression & Rolled Forging	-
Sanyo Special Steel Co. Ltd, Himeji <i>Carbon and Low Alloy Steel Forged Round Bars</i>	Hull and Machinery Steel Forgings*	ABS & Non-ABS	800 mm (Dia)	150000 kg	ODF	-
Sasebo Heavy Industries Co., Ltd., Nagasaki Pref.	Hull & Machinery Steel Forgings	ABS & Non-ABS	2,250mm (lgth), 1,720mm (Dia)	45,000 kg	ODF, CDF	-
Seo Koatsu Kogyo Co., Ltd., Ichikawa Works, Hyogo Pref.	Steel & Aluminum Forgings	ABS & Non-ABS	-	5,000 kg (Steel), 1,500 kg (Aluminum)	Drop Forgings, ODF	-
Shimizu Steel Co., Ltd., Utsunomiya Plant	Hull &/ Machinery Forgings	ABS & Non-ABS	1,300mm (Dia), 20,000mm (Lgth)	20,000 kg	Free Forging	-
Shinagawa Forging Co., Ltd., Ibaraki Pref.	Machinery Steel Forgings	ABS & Non-ABS	-	3,000 kg	ODF	-

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<u>JAPAN</u>						
SNT Corporation <i>Alloy Forgings for Machinery Etc connecting rods</i>	Steel Forgings	Nonj ABS	/	90KG	CDF	/
Sumiju Precision Forging Co., Ltd.	Machinery Steel Forgings	ABS & Non-ABS	250 mm dia	120 kg	ODF	-
Sunnan Iron Works Co., Ltd.	Hull & Machinery Forgings	ABS & Non-ABS	-	17,000 kg	ODF	-
Tanaka Tanko Zoki K. K., Osaka	Machinery Forgings, Low Alloy Steel for Machinery	ABS & Non-ABS	-	1,500 kg	ODF	-
Tanaka Tanko Zoki K. K., Osaka	Machinery Forgings, Stainless Steel for Machinery	Non-ABS	-	1,290 kg	ODF	-
Techno-Metal Co., Ltd.,	Machinery Steel Forgings	ABS & Non-ABS	-	9,500 kg	Drop Forging	-
The Endo Co., Ltd., Shimane Plant <i>* Max. Dia. of Pin &amp; Journal</i>	Machinery Forgings	ABS & Non-ABS	Max. Dia. 350mm*, Max. Lgth. 8,000mm	10,000 kg	CDF	-
The Japan Steel Works Co., Ltd., Muroran Plant	Hull and/or Machinery Forgings	ABS & Non-ABS	-	350,000 kg	ODF	-
Yamashita Tanzosho Co , Ltd Katano -Citry	Marine Machinery	ABS & NON ABS	-	3,000 kgs for steel and 1,00 kgs for Aluminum	ODF , RING ROLLING	-
Yamazaki Machinery Mfg., Co., Ltd.	Hull & Machinery Steel Forgings	ABS & Non-ABS	-	1,000 kg	Drop Forging	-

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<u>JAPAN</u>						
Yumesaki Seiatu Inc. Himeji	Machinery Steel Forgings*	ABS & Non-ABS	70 mm dia.	75 kg	CDF	-
<i>*Including ABS Grade 3 Chain Accessories.</i>						
<u>MEXICO</u>						
Frisa Forjados S.A. de C.V., Garza Garcia N.L.	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	8,000 mm	25,000 kg	ODF / Ring Rolled	-
<i>*Seamless Ring, Disc, Shaft</i>						
Frisa Forjados S.A. de C.V., Santa Catarina N.L.	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	8,000 kg	ODF, CDF, Drop & Rolled Forging	-
<i>*Ring, Bar, Disc, Shaft</i>						
<u>NORWAY</u>						
Scana Steel Stavanger AS, Joerpeland	Machinery Forgings*	Non-ABS	450 mm	5,500 kg	ODF, Drop Forgings, Hydraulic Press	-
<i>*Shaft, Axle, Bushing, Inlet, Valve, Piston Rod, Bar/Billet</i>						
<u>PEOPLES REPUBLIC OF CHINA</u>						
Angang Heavy Machinery Co., Ltd., Anshan, Liaoning District	Carbon Steel Forgings*	Non-ABS	-	70300 kg	ODF	-
<i>*Crank Throw, Thrust Shaft, Shaft Journal, Rudder Stock, Pintle, Intermediate Shaft, Propeller Shaft</i>						
Anshan Sinokor Flange Co., Ltd., Liaoning Province	Steel Forgings*	Non-ABS	-	800 kg	ODF	-
<i>*Flanges</i>						

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<u>PEOPLES REPUBLIC OF CHINA</u>						
AVIC Excellence Forging (Wuxi) Co., Ltd., Jiangsu	Carbon, C-Mn & Low Alloy Steel Forged Rings	Non-ABS	8,000 mm	25,000 kg	Drop Forging, Ring Rolling	-
Baoding Heavy Industry Co., Ltd., Zhejiang	Stainless Steel Forged Tailshafts	Non-ABS	-	3,030 kg	ODF	-
Baoding Heavy Industry Co., Ltd., Zhejiang	Carbon, C-Mn Low Alloy Steel Forgings*	ABS & Non-ABS	-	35,340 kg	ODF	-
<i>*Tube, Pipe, Sleeve, Key, Bolt, Pin, Shaft, Nut, Piston Rod, Rudder Stock, Gear Wheel, Ring</i>						
Baoshan Iron and Steel Co. Ltd. - Special Steel Business Unit	Steel Forgings*	Non-ABS	670 mm	10500 kg	Open Die / Drop Forging	-
<i>*C-Mn Steel (Forged Bar for Hydraulic Cylinder)</i>						
Changzhou Kangning Forging Co., Ltd., Changzhou	Carbon, C-Mn, Low Alloy & S. Steel Forgings	Non-ABS	-	1,700 kg	ODF / Ring Rolling	-
<i>*Shaft, Ring, Flange</i>						
China Erzhong Group (Deyang) Heavy Ind., Co., Ltd.	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	200,000 kg (ODF) / 1000kg (CDF)	ODF, CDF	-
<i>Rudder stock, Pintle, Crankshaft, Piston, Cylinder cover, Cross-head, Chain Wheel, Bolt, Stud</i>						
China First Heavy Machinery Group, Heilongjiang	C-Mn Steel Forgings*	ABS & Non-ABS	-	75,000 kg	ODF	-
<i>*Rudder Stock, Pintle, Propeller Shaft, Intermediate Shaft</i>						

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Chongqing Changzheng Heavy Industry Co., Ltd., Chongqing <i>*Connecting Rod, RAM Pluger</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	5,500 kg	ODF / Free Forging	-
Chongqing Dadi Heavy Industry Machinery Co., Ltd. <i>*Shaft</i>	Steel Forgings*	Non-ABS	-	22,000 kg	ODF	-
Chongqing Hongjiang Machinery Co., Ltd. <i>*Top Cover, Collector, End Flange</i>	Steel Forgings*	Non-ABS	-	360 kg	Drop Forging	-
CITIC Heavy Industries Co., Ltd., Henan <i>*Rudder Stock, Pintle, Shaft, Flange Ring, Coupler</i>	Carbon & C-Mn Steel Forgings*	Non-ABS	-	50,000 kg	CDF / ODF / Ring Rolling	-
CSR Ziyang Co., Ltd., Ziyang, Sichuan <i>*Crank Shaft, Connecting Rod, Connecting Bolt</i>	Carbon, C-Mn, & Low Alloy Steel Forgings*	Non-ABS	-	8,000 kg	ODF	-
CSSC- Nanjing Luzhou Machine Co., Ltd., Jiangsu <i>*Shaft</i>	Carbon, C-Mn & Low Alloy Steel Forgings	Non-ABS	400mm	2,000 kg	ODF	-
Dalian Chuanxin Forging Co., Ltd., Dalian City <i>*Shaft, Lower Bearing, Gear, Claw Coupling</i>	Carbon, C-Mn, Low Alloy & Alloy Steel Forgings*	Non-ABS	-	3,500 kg	ODF	-

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Dalian City Jinzhou Jintai Forge Factory, Liaoning <i>*Shaft, Rudder Pintle</i>	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	3,000 kg	ODF	-
Dalian Hongqi Forging & Press Factory, Liaoning <i>*Flanges and Fittings (C-Steel, Alloy Steel and Stainless Steel)</i>	Steel Forgings*	Non-ABS	-	150 kg	ODF	-
Dalian Huarui Heavy Industry Steel Casting Co., Ltd., Dalian <i>*Propeller Shaft, Intermediate Shaft, Rudder Stock, Pintle, Crank Throw, Cylinder Cover.</i>	C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	33,000 kg	ODF	-
Dalian Metallurgical Bearing Co., Ltd. <i>*Slewing Bearing Ring</i>	Steel Forgings*	Non-ABS	5,000 mm	5,900 kg	Drop Forging, Ring Rolling	-
Dalian Yinshan Metal Products Co., Ltd., Liaoning	Carbon Steel Forged Flages	Non-ABS	-	216 kg	ODF	-
Dalian Yufu Heavy Industry Metal Forming Machinery Co., Ltd.	Carbon, Alloy & Stainless Steel Flanges	Non-ABS	-	350 kg	Drop Forging	-
Daye Special Steel Co., Ltd., Hubei <i>*Semi-Finished and Rough Machined Forgings</i>	Carbon & Low Alloy Steels*	ABS & Non-ABS	800 mm	30,000 kg	Radial Forging	-
Deqian Hangzhong Forging Co., Ltd., Zhejiang <i>*Gear, Geared Ring, Rotor, Beam, Transmission Shaft</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	1,200 mm (Ø), 9,400 mm (L)	33,000 kg	ODF	-

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Dongbei Special Steel Group - Fushan Spec.Steel Co. Ltd.- Fushan <i>*Forged Bar for Crankshaft</i>	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	4,000kg	ODF	-
Dongbei Special Steel Group-Beiman Spec.Steel Co. Ltd.-Heilongjiang <i>*Pump, Block</i>	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	21,000 kg	ODF	-
FOMAS Precision Forging (Dalian) Co., Ltd., Liaoning <i>*Gear Ring</i>	Low Alloy Steel Forgings*	Non-ABS	-	1,022 kg	ODF / Ring Rolling	-
Foshan Shunde District Zhong Lian Forging Co., Ltd. <i>*Tailshaft, Shaft, Propeller Shaft</i>	C-Mn, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	15,000 kg	ODF	-
Guangzhou No. 1 Forging Factory Co., Ltd., Guangzhou <i>*Shaft, Annular</i>	Steel Forgings*	ABS	1,205mm (Ø) / 8,300mm (L)	6,800kg	ODF / Drop Forging	-
Guangzhou Shipyard Foshan Casting & Forging Branch, Guangdong <i>Carbon and Low Alloy Steel (Marine Shaft, Rudder Stock, Shaft Bracket, Annular Blank).</i>	Steel Forgings*	ABS & Non-ABS Grade	600mm (Thickness)	4,500 kg	ODF	-
Hai'an Weishi Heavy Machinery Co., Ltd., Jiangsu <i>Shafts</i>	Steel Forgings	Non-ABS	-	23,000 kg	ODF	-

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Hana Heavy Industry Co., Ltd., Qingdao	Steel Flanges	Non-ABS	-	1,750 kg	ODF, Ring Rolling	-
Hangzhou Advance Gearbox Group Ltd., Hangzhou	C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	4,000 kg	ODF / CDF	-
<i>*Gear, Carrier, Pinion, Cylinder, Shaft, Bolt</i>						
Hebei Sanlin Pipe Industry Co., Ltd., Hebei	Carbon, C-Mn & Stainless Steel Forgings*	Non-ABS	-	150 kg	ODF	-
<i>*Flange</i>						
Henan Diesel Engine Industry Co., Ltd., Henan	Low Alloys Steel Forgings*	Non-ABS	-	450 kg	ODF	-
<i>*Crankshaft, Connecting Rod</i>						
Huixin Metal Product Co., Ltd. of Shunde District, Foshan City	Carbon, C-Mn & Low Alloys Steel Forgings*	Non-ABS	1,000 mm	8,000 kg	ODF, Free Forging	-
<i>*Shaft, Disk, Annular</i>						
Inner Mongolia North Heavy Industries Group Ltd., Baotou City	Carbon, C-Mn & Alloy Steel Forgings*	Non-ABS	-	C-Steel: 6000 kg, Alloy Steel: 5000 kg	ODF	Electric Arc & Ladle Furnace
<i>*Gear and Shaft</i>						
Inner Mongolia North Heavy Industries Group Ltd., Baotou City	Carbon, C-Mn & Alloy Forged Blooms*	Non-ABS	-	4500 kg	ODF	Electric Arc & Ladle Furnace
Jiangsu Guoguang Heavy Machinery Co. Ltd., Jiangyin	Steel Forgings*	Non-ABS	-	90,000 kg	ODF	-
<i>*Rudder Stock, Shaft (C, C-Mn Steel), Propeller Shaft (42CrMo)</i>						

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Jiangsu Hongsheng Heavy Industry Group Co., Ltd., Jiangyin <i>*Shaft, Gear</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	13000 kg	ODF / CDF	-
Jiangsu Jinyuan Forging Co., Ltd., Liyang <i>*Gear, Shaft</i>	Steel Forgings*	Non-ABS	-	11,100 kg	ODF	-
Jiangsu Sunan Heavy Machinery Technology Co., Ltd. <i>*Shaft, Crank Throw Blank</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	ABS & Non-ABS	-	108,070 kg	ODF	-
Jiangsu Tongyu Forging Co., Ltd., Rugao <i>*Shaft, Flange, Sleeve, Ring</i>	Carbon, C-Mn, Low Alloy & Stainless Steel Forging*	Non-ABS	-	14,500 kg	ODF, Ring Rolling	-
Jiangyan Sanli Pipe Fitting Co., Ltd., Jiangsu <i>*Flange</i>	Carbon & C-Mn Steel Forgings*	Non-ABS	-	150 kg	Drop Forging	-
Jiangyin City Longyu Forging Co., Ltd., Jiangyin <i>*Cylinder, Shaft, Ring</i>	C-Mn, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	4,600 kg	ODF / Drop Forging	-
Jiangyin Dongyuan Special Steel Co., Ltd., Jiangyin	Steel Forgings (Shaft)	Non-ABS	-	8,000 kg	Open Die Forging	-
Jiangyin Fangyuan Ringlike Forging & Flange Co., Ltd., Jiangyin <i>*Ring, Flange</i>	Steel Forgings*	ABS & Non-ABS	-	10,000 kg	Drop Forging, Ring Rolling	-

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Jiangyin Hengrun Heavy Industries Co., Ltd., Zhouzhuang Town <i>*Flange, Shaft</i>	Machinery Steel Forgings*	Non-ABS	-	20,000kg	ODF, Ring Rolling	-
Jiangyin Hengye Forging Co., Ltd. Zhou Zhuang <i>*Flange, Shaft, Ring</i>	Steel Forgings*	Non-ABS	-	25,000 kg	ODF, Ring Rolling	-
Jiangyin Liaoyuan Forging Co., Ltd., Jiangsu <i>*Ring, Shaft</i>	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	5,800 kg	ODF, Ring Rolling	-
Jiangyin Puyang Flange Co., Ltd., Jiangyin	Steel Flanges	Non-ABS	-	500 kg	Drop Forgings	-
Jiangyin Sanlin Machinery & Piping Components Co., Ltd.	C-Mn & Stainless Steel Flanges	Non-ABS	-	500 kg	Drop Forging,	-
Jiangyin Tongqing Machinery Manufacture Co., Ltd., China <i>*Flange, Shaft, Sleeve</i>	Carbon, C-Mn & Low Alloy Steels, Stainless Steels*	Non-ABS	-	21,000 kg	ODF, Drop Forging, Ring Rolling	-
Jiangyin Zenkung Forging Co., Ltd., Huashi <i>Ring, Shaft, Rudder Stock</i>	Steel Forgings	ABS & Non-ABS	-	26,000kg	Drop Forging	-
Jiangyin Zhongnan Heavy Industries Co. Ltd., Jiangyin <i>*Flange</i>	Carbon, C-Mn & Stainless Steel Forgings*	Non-ABS	-	520 kg	ODF	-

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COUNTRY

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Jingjiang Zhengmao Anchor Chain Accessory Co. Ltd., Jiangsu	Steel Forgings*	ABS Grade R4	152 (Mooring Chain Dia)	1000 kg	ODF, Drop Forging	-
<i>*Semi-finished Kenter Shackle. The approval is limited to supply semi-finished forgings to ABS approved accessory manufacturer</i>						
Kunshan Hongda Heavy Forging Co., Ltd., Kunshan	Steel Forgings*	Non-ABS	-	5,000 kg	Drop Forging	-
<i>*Input Shaft, Propeller Shaft</i>						
Liaoning 518 Internal Combustion Engine Fitting Co., Ltd.	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	12,500 kg	ODF	-
<i>*Crankshaft</i>						
Liaoning 518 Internal Combustion Engine Fitting Co., Ltd.	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	500 kg	CDF	-
<i>*Connecting Rod</i>						
Liyang Everest Precision Casting & Forging Co., Ltd., Jiangsu	Low Alloy Steel Forgings*	Non-ABS	-	20 kg	CDF	-
<i>*Forgings for Container Lashing Fitting</i>						
Luda (Taian) Industrial Co., Ltd., Shandong	Carbon & Stainless Steel Forged Flanges*	Non-ABS	-	120 kg	Drop Forging	-
Luoyang Xingrong Industrial Co., Ltd.	Steel Forgings*	Non-ABS	-	30,000 kg	ODF	-
<i>*Intermediate Shaft, Tail Shaft</i>						
Nanjing Automobile Forging Co. Ltd., Nanjing	Steel Forgings	Non-ABS	-	2.68 kg*	ODF / CDF	-
<i>Hook: 1.47 kg; Lashing Bar: 2.0 kg; Top Plate*: 2.68 kg</i>						

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Nanjing Boda Heavy Forging Co. Ltd., Nanjing <i>*Propeller Shaft, Intermediate Shaft, Fitting Bolt</i>	Machinery Steel Forgings*	Non-ABS	1,000 mm	20,000 kg	ODF	-
Nantong Tyson Keyu Forging Co. Ltd., Nantong	Carbon, C-Mn & Low Alloy Steel Forgings	Non-ABS	-	16,000 kg (Shaft), 12,000 kg (Ring)	ODF, Ring Rolling	-
Nantong Zhuoyue Forging Co. Ltd., Nantong <i>*Shaft, Gear, Disc (Carbon, Low Alloy and Stainless Steel)</i>	Steel Machinery Forgings*	Non-ABS	-	5000kg (C/Alloy Steel), 2000kg (Stainless Steel)	ODF	-
Ningbo Tongdi Heavy Forging Co. Ltd. Ningbo <i>*Propeller Shaft, Axis, Intermediate Shaft</i>	Steel Forgings*	ABS & Non-ABS	1,230 mm	17,500 kg	ODF	-
Pangang Group Jiangyou Changcheng Special Steel Co., Ltd. <i>*C-Mn and Low Alloy Steel</i>	Forged Bloom/Bar*	Non-ABS	300mm	5,000 kg	ODF, Roll Forging	-
Qilu Special Steel Co., Ltd., Yanzhou <i>*Round Bar, Shaft</i>	Steel Forgings*	Non-ABS	650mm	20,000 kg	ODF	-
Roc-Master Piping Solutions Ltd., Jiangxi <i>*Disk, Shaft, Flange</i>	Steel Forgings*	ABS & Non-ABS	-	2,000 kg	ODF	-
Shaanxi Huawei Forging Co., Ltd., Shaanxi <i>*Gear Shaft, Pinion Shaft, Gear Blank, Rack Blank. Ring</i>	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	15,000 kg	Drop Forging	-

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Shanghai Electric (Wuxi) Forging Co., Ltd., Jiangsu	Steel Forgings	ABS	-	20,000 kg	ODF	-
Shanghai Heavy Machinery Plant Co., Ltd., Shanghai	Steel Forgings*	Non-ABS	-	58,000 kg	ODF	-
<i>*Crank Throw, Main Journal, Thrust Shaft</i>						
Shanghai Hudong Forging Plant Co., Ltd., Shanghai	C-Mn, Low Alloy & Stainless Steel Forgings*	Non-ABS	320mm (Ø) x 8,400mm (L)	6,200 kg	ODF	-
<i>*Camshaft, Rudder Stock, Jack Case, Shaft, Anchor Shackle, Bearing Housing</i>						
Shanghai Jiaoda Chukyo Forging and Stamping Co. Ltd., Shanghai	Steel Forgings*	Non-ABS	-	10 kg	ODF	-
<i>*Fork, Lashing Plate</i>						
Shanghai Shenjiang Forging Co., Ltd., Shanghai	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	500 mm	3,000 kg	ODF	-
<i>*Ring, Shaft, Flange, Gear Assembly</i>						
Shanxi Taigang Stainless Steel Co., Ltd., Shanxi	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	400 mm	12,000 kg	Drop Forging, Radial Forging	-
<i>*Shaft</i>						
Shaoguan Zhongji Heavy Forging Co., Ltd., Guangdong	Steel Forgings*	Non-ABS	-	12,000 kg	ODF, Drop Forging	-
<i>*Rack Plate, Leg Cord, Pinion Shaft, Tail Shaft, Climbing Gear, Bearing, Gear Blank, Rack Blank, Ring</i>						

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Shi Gang Jing Cheng Equipment Dev. and Mfg. Co., Ltd., Yinkou	Steel Forgings*	ABS	-	53,750 kg	ODF	-
<i>*Propeller Shaft, Intermediate Shaft, Rudder Stock, Pintle</i>						
Sichuan Liuhe Forging Co., Ltd., Sichuan	Steel Forgings*	Non-ABS	-	6,000 kg	ODF	-
<i>*Shaft, Ring, Depth</i>						
Suzhou City Hongsheng Forging Co., Ltd., Jiangsu	Low Alloy Steel Forgings*	Non-ABS	-	1,500kg	ODF	-
<i>*Shaft, Wheel</i>						
Taixing Taili Machinery Forging Factory, Jiangsu	C-Mn, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	8,300 kg (C-Mn & Low Alloy) / 1,600 kg (Stainless)	ODF, CDF	-
<i>*Shaft, Flange, Piston Crown, Sleeve</i>						
Tianjin Concord Mechanical and Electrical Technology Co., Ltd.	Machinery Steel Forgings*	Non-ABS	-	7,300 kg	ODF / CDF	-
<i>*Crank Throw, Crankshaft</i>						
Tianjin Tianzhong Giant Heavy Industry Co. Ltd., Tianjin City	C-Mn Steel Forgings*	ABS & Non-ABS	-	55,000 kg	ODF	EAF+LF+VD
<i>*Propeller Shaft, Intermediate Shaft, Rudder Stock, Pintle.</i>						
Tianma (Chengdu) Railway Bearing Co., Ltd., Sichuan	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	18,700 kg	ODF / Ring Rolling	-
<i>*Shaft, Gear, Ring</i>						
Tianrun Crankshaft Co., Ltd., Wendeng City	Steel Forged Crankshaft	Non-ABS	173 mm	275 kg	ODF	-

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<u>PEOPLES REPUBLIC OF CHINA</u>						
Tongyu Heavy Industry Co., Ltd., Shangdong <i>*Shaft, Round Bar, Rack</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	51,000 kg	Drop Forging	-
Weihai Forging Co., Ltd., Shandong	Steel Forgings*	Non-ABS	700 mm	20,000 kg	Drop Forging	-
Wuhan Heavy Industry Casting & Forging Co., Ltd., Hubei <i>*Crankshaft, Crank Throw, Cylinder Cover, Stay Bolt, Gear Wheel, Intermediate Shaft, Rudder Stock</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	ABS & Non-ABS	-	54,000 kg	ODF	-
Wuxi Baolu Forging Co., Ltd., Huishan <i>*Flange, Disc, Ring</i>	Steel Forgings*	Non-ABS	900 mm (Shaft); 4200 mm (Ring)	9000 kg	ODF, Ring Forging	-
Wuxi City Xinhua Lifting Equipment Co., Ltd. <i>*Lifting Hook, Shackle, Shaft, etc.</i>	C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	120 kg	ODF	-
Wuxi Flange Forging Co., Ltd., Jiangsu, China <i>*Flange, Disc, Tube Sheet</i>	Steel Forgings*	Non-ABS	-	17,000 kg	ODF, Ring Forging	-
Wuxi Hongda Heavy Forging Co., Ltd. <i>*Output Pinion Shaft, Shaft, Rudder Stock</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	ABS & Non-ABS	-	5,807 kg	ODF, Drop Forging	-
Wuxi Jianghai Precise Annular Forging Co., Ltd., Jiangsu, China <i>*Shaft, Annular</i>	Steel Forgings*	Non-ABS	-	13,000 kg	ODF, Ring Rolling	-

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Wuxi Jinsheng Forging Co., Ltd., Jiangsu, China <i>*Disc, Shaft, Annular</i>	Steel Forgings*	Non-ABS	-	12,100 kg	ODF, Drop Forging, Ring Rolling	-
Wuxi Jiping Forging Co., Jiangsu <i>*Gear, Rim, Flange, Shaft</i>	C, C-Mn, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	9,000 kg	ODF	-
Wuxi Paik Heavy Casting & Forging Co., Ltd., Wuxi <i>*Disk, Ring, Shaft Flange</i>	Low Alloy & Stainless Steel Forgings*	Non-ABS	ID: 2,000mm; OD: 3,000mm	15,000 kg	ODF, Ring Rolling	-
Wuxi Zhonghuan Heavy Forging Co., Ltd. <i>*Shaft, Ring, Disc</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	7,000 kg	ODF, Ring Rolling	-
Xuzhou Rothe Erde Ring Mill Co., Ltd., Xuzhou <i>*Ring</i>	Steel Forgings*	Non-ABS	4,400 mm (OD) / 242 mm (T) / 214 mm (H)	8,000 kg	Ring Rolling	-
Yada Piping Solution Co., Ltd., Zhejiang <i>*Flange, Pipe Fitting</i>	Carbon & Austenitic Stainless Steel Forgings*	Non-ABS	-	150 kg	ODF	-
Yancheng Haite Hydraulics Machinery Co., Ltd. <i>*Flange, Pipe Fitting</i>	Machinery Steel Forgings*	Non-ABS	-	190 kg	ODF, CDF	-
Yichang Marine Diesel Engine Plant, Yichang <i>*Bolt, Gear Cam, Camshaft, Bearing Cover, Connecting Rod</i>	Steel Forgings*	Non-ABS	-	500 kg	ODF	-

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Zhangjiagang City Suhu Forging Co., Ltd., Jiangsu <i>*Shaft, Rod, Rail, Crosshead, Rotor, Bolt, Flange, Camshaft, Valv</i>	Steel Forgings*	Non-ABS	-	4,000 kg	Drop Forging	-
Zhangjiagang Deshang Forging Co., Ltd., Jinfeng <i>*Shaft, Flange, Annular</i>	Steel Forgings*	Non-ABS	-	8,000 kg	ODF	-
Zhangjiagang Guangda Machine Forging Co., Ltd., Jiangsu <i>*Shaft</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	8,000 kg	ODF	-
Zhangjiagang Hailu Annular Forgings Co., Ltd., Jinfeng <i>*Ring, Shaft</i>	Steel Forgings*	Non-ABS	-	3,500 kg	ODF / Ring Rolling	-
Zhangjiagang Hengtong Annular Forging Mfg. Co. Ltd. - Jiangsu <i>*Shaft, Seamless Ring/Tube, Forged Bar (C/C-Mn Steel, Low Alloy Steel and Stainless Steel)</i>	Steel Forgings*	Non-ABS	-	10,000 kg (ODF); 5,000 kg (Ring Rolling)	ODF; Ring Rolling	-
Zhangjiagang Huari Flange Co., Ltd., Zhangjiagang City <i>*Flange</i>	Carbon & C-Mn Steels, Stainless Steels*	Non-ABS	980 mm	200 kg	ODF	-
Zhangjiagang Wanqing Forging Co., Ltd., Zhangjiagang City <i>*Ring, Disk, Shaft</i>	C-Mn, Low Alloy and Stainless Steel Forgings*	Non-ABS	-	8,000 kg	Drop Forging	-

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<b><u>PEOPLES REPUBLIC OF CHINA</u></b>						
Zhangjiagangcity Xinda Forging Co. Ltd., Jiangsu <i>*Shaft, Ring (Carbon/C-Mn Steel and Low Alloy Steel)</i>	Steel Forgings*	Non-ABS	-	500 kg	ODF, Drop Forging	-
Zhejiang Derun Heavy Industry Co. Ltd. <i>*Propeller Shaft, Intermediate Shaft</i>	Carbon & C-Mn Steel Forgings*	Non-ABS	-	66,000 kg	ODF	-
Zhejiang Hongxin Heavy Forging Co. Ltd. <i>*Tail Shaft, Rudder Pintle (C-steel, Alloy steel)</i>	Steel Forgings*	Non-ABS	-	15000kg (C-steel), 5000kg (Alloy steel)	ODF	-
ZhengMao Group Changshu Anchor Chain Accessory Co. Ltd. <i>*Semi-finished End/Joining Shackle. The approval is limited to supply semi-finished forgings to ABS approved accessory manufacturer</i>	Steel Forgings*	ABS Grade R4	152 (Mooring Chain Dia)	2500 kg	ODF, Drop Forging	-
ZhengMao Group Changshu Anchor Chain Accessory Co. Ltd. <i>*Semi-finished Swivel. The approval is limited to supply semi-finished forgings to ABS approved accessory manufacturer</i>	Steel Forgings*	ABS Grade R4	137mm (Mooring Chain Dia)	2500 kg	ODF, Drop Forging	-
Zhongyuan Special Steel Group Co., Ltd., Henan Province <i>*Rudderstock, Pintle, Shaft, Forging Blanks for Gear (Carbon and Low Alloy Steel).</i>	Steel Forgings*	ABS (2,4C, A6) & Non-ABS	-	19000 kg	ODF	-

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<u>POLAND</u>						
Celsa Huta Ostrowiec Sp. Z.o.o.	Machinery Steel Forgings*	Non-ABS	-	70,000 kg	ODF	-
<i>*Crankshaft, Propeller Shaft, Intermediate Shaft, Piston, Piston Rod, Cylinder, Coupling Flange, Muff</i>						
HSW Kuznia Stalowa wola SP Z.O.O.	HULL & MACHINERY	NON ABS	Forged bars-610 mm dia,	10,000 Kg	ODF	-
<i>Forged Blocks -1000x1000x1500mm , rings Sleeves &amp; Discs-2000 mm , other Forgings -650 mm Dia</i>						
Kuznia Batory Sp. Z.o.o., Gorlice	Steel Hull & Machinery Forgings	Non-ABS	-	10,500 kg	ODF	-
Kuznia Glinik Sp. Z.o.o., Gorlice	Steel Machinery Forgings*	Non-ABS	-	2,000 kg	ODF, Drop Forging	-
<i>*Round Bar, Shaft, Ring, Sleeve, Disk</i>						
Zarmen Sp. Z o.o., Zdieszowice	Steel Forgings*	Non-ABS	-	24,000 kg	ODF	-
<i>*Forged Bars, Shafts, Discs, Rings, Flaged Shafts</i>						
<u>REPUBLIC OF CHINA</u>						
Nan Lung Steel & Iron Corporation, Kaohsiung	Hull & Machinery Steel Forgings	ABS	2.5m (Machinery), 6.5m (Hull)	2000kg (Machinery), 16,000kg (Hull)	ODF, Ring Rolling	-
<i>*Seamless Ring, Nozzle, Shaft, Rudder Stock, Gear, Bar, Pintle</i>						
San Eng Steel Forging Co., Ltd., Kaohsiung	Carbon, C-Mn & Low Alloy Steel Forgings*	ABS Gr. 2,3,4	-	15,000 kg	ODF	-
<i>*Rudder Stock, Pintle</i>						

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<u>ROMANIA</u>						
Doosan IMGB SA	Hull & Machinery Forgings	Non-ABS	-	300,000 kg	ODF	-
S.C. Forsev S.A., Severin <i>*Connecting Rod, Bush, Piston Crown, Shaft</i>	Steel Forgings*	Non-ABS	-	800 kg	ODF, Drop forging	-
<u>RUSSIA</u>						
Metallurgichesky Zavod Kamastal Ltd., Perm <i>*Shafts, Bars, Plates, Blocks, Rings</i>	Steel Forgings*	Non-ABS	600 mm	14,000 kg	ODF, Rolled, Swaging	EAF
OMZ - Special Steels, ST Petersburg <i>Marine and Offshore Forgings</i>	Carbon, Low Alloys, C-MN	NON ABS	-	230,000 kg	OD	-
<u>SLOVENIA</u>						
Metal Ravne d.o.o., Ravne Na Koroskem <i>*Bar</i>	Steel Forgings*	Non-ABS	-	24,000 kg	ODF / CDF	-
<u>SOUTH KOREA</u>						
Dae Chang Forging Co., Ltd.	Steel Crankshafts	Non-ABS	-	150 kg	CDF	-
Dae Heung Ind. Co., Ltd., Kyungnam <i>*Ring, Rudder Stock, Shaft, Flange, Gear, Piston Crown</i>	Carbon, C-Mn, Low Alloy & Stainless Stee Forgings*	Non-ABS	1,800 mm (Ø) / 7,000 mm (L)	5,000 kg	Drop Forging, Ring Rolling	-

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<b><u>SOUTH KOREA</u></b>						
Daichang Marine Technology Co., Ltd. - Jinlu Factory <i>*Fittings: Elbow, Tee</i>	Carbon & Stainless Steel Forgings*	Non-ABS	170 mm (Ø) / 202 mm (L) / 138 mm (T)	30 kg	CDF	-
Dasan Material Co., Ltd., Gimhae <i>*Piston Crown, Cylinder Cover, Chain Wheel, Connecting Rod, Piston Rod, Cam Shaft, Pintle, Rudder Stock, Propeller Shaft, Intermediate Shaft, Ring, Flange, Bolt, Nut</i>	C-Mn & Low Alloy Steels*	Non-ABS	2,500 mm (Ø), 300 mm (t)	15,000 kg	Drop Forging, Open Die Forging, Ring Rolling	-
Dong Yang E & C Co., Ltd., Gyeongbuk <i>*Piston Rod, Cylinder Cover, Round Bar</i>	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	20,000 kg	ODF	-
Doosan Heavy Industries & Construction Co., Ltd. <i>*Propeller Shaft, intermediate Shaft, Rudder Stock, Rudder Pintle, Crankshaft, Connecting Rod, Cover, Piston Rod</i>	Steel Forgings*	Non-ABS	16 m (L) x 2.5 m (Ø)	230,000 kg	ODF	-
Felix Technology Co., Ltd., Busan <i>*Disc, Ring, Shaft, Flange</i>	Carbon, C-Mn, Low Alloy & Stainless Steel Forging*	Non-ABS	-	3,500 kg	ODF / Ring Rolling	-
Formetal Co., Ltd., Choongnam <i>Connecting Rod</i>	Steel Machinery Forgings	Non-ABS	-	150 kg	ODF	-
Gisan Forging Co., Ltd., Kyungnam <i>*Blind, Block, Plate, Ring, Shaft/Round Bar, Housing, Boss</i>	Carbon & Low Alloy Steel Forgings*	ABS & Non-ABS	3,500 mm Ø, 1,200 mm T	10,000 kg	ODF, Ring Rolling	-

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<u>SOUTH KOREA</u>						
Go. Co., Ltd., Kyoungnam	Machinery Steel Forgings*	Non-ABS	-	5,000 kg	ODF	-
<i>*Cylinder Cover, Piston Crown, Piston Rod, Crosshead Pin, Connecting Rod, Main Journal, Rudder Stock, Pintle, Nut</i>						
Hae Sung Ind. Co., Ltd., Dangjin	Steel Forgings*	Non-ABS	-	4 kg	ODF	-
<i>*Connecting Rods</i>						
Hae Won Special Forging Co., Ltd., Kyungnam	Steel Forgings *	Non-ABS	1900 mm (Diameter) x 800 mm (Length)	18,000 kg	ODF	-
<i>* Shaft, Piston Crown, Cylinder Cover, Connecting Rod, Crosshead Pin, Flange (C and low alloy steel).</i>						
Hanil Forging Ind. Co., Ltd. Kyungnam	Carbon, C-Mn, Low Alloy & Stainless Steel Forging*	Non-ABS	400 mm	3,000 kg	ODF	-
<i>*Coupling Bolt, Round Bar, Shaft</i>						
HHI Engine & Machinery Division, Ulsan	Forged Steel Engine Components*	Non-ABS	-	200,000 kg	ODF/CDF	-
<i>*Crankshaft, Connecting Rod, Cylinder Cover</i>						
Hwajoo Metal Inc.	Steel Forgings*	Non-ABS	-	15,000 kg	ODF	-
Hyunjin Materials Co. Ltd., 1601-1 Songjung-Dong (Plant 1), Busan	Steel Forgings *	Non-ABS	12m (Length), 2m (Dia)	30,000 kg	ODF	-
<i>*C, C-Mn, Low Alloy Steel (Piston Rod, Connecting Rod, Piston Crown, Main Journal, Propeller Shaft, Intermediate Shaft, Coupling, Rudder Stock, Pintle).</i>						

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<u>NAME AND LOCATION</u>	<u>PRODUCT TYPE</u>	<u>GRADE</u>	<u>FORGING THICKNESS</u>	<u>FORGING WEIGHT</u>	<u>FORGING PROCESS</u>	<u>MELTING PRACTICE</u>
<u>SOUTH KOREA</u>						
Hyunjin Materials Co. Ltd., 1601-1 Songjung-Dong (Plant 1), Busan	C-Mn & Low Alloy Steel Forgings*	Non-ABS	OD (Ø): 3,500 mm, T: 1,200 mm	13,000 kg	Ring Rolling	-
<i>*Gear Wheel, Chain Wheel, Rim, Ring</i>						
Hyunjin Materials Co., Ltd., 1660-12 Songjung-Dong (Plant 2), Busan	Steel Forgings *	Non-ABS	15m (Length), 2.5m (Dia)	80,000 kg	ODF, CDF	-
<i>*C, C-Mn, Low Alloy Steel (Crankshaft and Semi-built Crankshaft - Crank Throw, Shaft Piece, Main Journal for Diesel Engine, Propeller Shaft, Intermediate Shaft, Rudder Stock, Rudder Hub, Rudder Horn, Pintle).</i>						
Jeil Forging Co., Ltd., Gyeongnam	Carbon, C-Mn, Low Alloy & Stainless Steels*	Non-ABS	1,600 mm	4,000 kg	ODF, Ring Rolling	-
<i>*Hub Sleeve, Gear Wheel, Pinion, Flange, Round Bar, Square Bar, Coupling, Gear, Connector</i>						
Jinyang Specialty Steel Co., Ltd., Gyeong-Buk	Carbon, C-Mn & Low Alloy Steels*	Non-ABS	123 mm	700 kg	Rolled Forging	-
<i>*Steel Forged Semi-Finished Round Bar</i>						
Jung Kwang Industry Co., Ltd., Gyeongnam	Carbon, C-Mn & Low Alloy Steel Forgings*	ABS & Non-ABS	1,200 mm	2,500 kg	ODF	-
<i>*Shaft, Coupling Bolt, Flange</i>						
KISCO - Changwon, Kyungnam	Steel Forgings*	ABS & Non-ABS	-	100,000kg (C Steel), 55,000kg (Alloy Steel)	ODF	-
<i>*C/C-Mn Steel &amp; Low Alloy Steel (Rudder Stock, Shaft, Roll, Hook, Tong, Pinion, Disc, Flange, Ring, Coupling and Crank Throw).</i>						

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<u>SOUTH KOREA</u>						
Korea Flange Co., Ltd., Ulsan <i>*Flange, Connecting Rod</i>	Steel Forgings*	Non-ABS	-	2,500 kg	Drop Forging, ODF & Ring Rolling	-
KSP Co., Ltd., Busan <i>*Shaft, Connecting Rod, Flange, Ring</i>	Steel Forgings*	Non-ABS	600mm (t) (Ring), 2,200mm (L) x 500mm (Ø) (Shaft)	900 kg (ring type), 1500 kg (shaft type)	ODF, CDF	-
MYSCO Co., Ltd. - Bonsan Plant, Gyeongnam <i>*Shaft, Disk, Tube Sheet (C/C-Mn Steel, Low Alloy Steel and Stainless Steel)</i>	Steel Forgings*	Non-ABS	-	75,000 kg	ODF	-
MYSCO Co., Ltd. - Juchon Plant, Gyeongnam <i>*Shaft, Disk, Ring, Tube Sheet(C/C-Mn Steel, Low Alloy Steel and Stainless Steel).</i>	Steel Forgings*	Non-ABS	-	21,000 kg	ODF, Ring Rolling	-
MyungSung Forging Co. Ltd., <i>*Piston Crown, Rudder Stock, Pintle, Rectangular/Round Bar, Intermediate Shaft, Gear Wheel and Piston Rod</i>	Steel Forgings*	Non-ABS	-	16000kg	ODF	-
O-Sung Forging Ind., Co., Ltd., Gimhae, Kyungnam <i>*Shaft, Flange, Bearing, Rudder Stock, Pintle, Gear Wheel, Pinion, Nozzle, Coupling, Ring, Bar, Forged Plate, Stern</i>	Carbon, C-Mn, Low Alloy & S. Steel Forgings*	Non-ABS	-	10,500 kg	ODF, Ring Rolling	-
Poongsan Corporation - Angang Plant, Gyeongbuk <i>*Compressor Wheel Forging for Turbocharger (ASTM B247-A2618, DIN3.1924-AICu2MgNi )</i>	Aluminum Forgings*	Non-ABS	890	544 kg	CDF	-

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<u>SOUTH KOREA</u>						
POSCO Speciality Steel Co., Ltd., Changwon-City	Carbon & C-Mn Steel*	ABS & Non-ABS	-	100,000 kg	ODF	-
<i>*Propeller Shaft, Intermediate Shaft, Rudder Stock, Pintle, Connecting Rod, Cylinder Cover, Piston Crown, Crosshead, Pin, Camshaft, Crankshaft, Flange, Main Journal, Thrust Shaft</i>						
PSM Inc., Busan	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	120,000 kg	ODF	-
<i>*Propeller Shaft, Intermediate Shaft, Rudder Stock, Pintle, Gear Wheel, Chain Wheel, Pinion, Flange, Nozzle, Reamer/Coupling, Bolt, Nut</i>						
Pu Sung Metal Co., Ltd., Kyunggi-Do	Anchor and Mooring Accessories*	ABS	132 mm	1,000 kg	ODF, CDF, Drop Forgings	-
<i>*Stud, Anchor Shackle, Kenter Shackle, Swivel</i>						
S&W Corporation Jinrye Factory, Kimhae	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	650 mm (Ø) / 1,200 mm (L)	350 kg	CDF	-
<i>*Roller Shaft, Crank Shaft, Cam Shaft, Gate B. Valve</i>						
Sam Boo Metal Co., Ltd., Busan	Machinery Steel Forgings*	Non-ABS	1,500 mm	7,000 kg	ODF	-
<i>*Gear Wheel, Pinion, Coupling Bolt, Valve Block, Flange</i>						
Sam Mi Metal Products Co., Ltd., Gyoungnam	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	3,200 mm	1,000 kg	ODF, Drop Forging	-
<i>*Piston Crown, Connecting Rod, Crankshaft</i>						

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<u>SOUTH KOREA</u>						
Seohan ENP. Co., Ltd., Gyeong-Ju	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	80,000 kg	ODF, Ring Rolling	-
<i>*Piston Rod, Main Journal, Shaft Flange, Thrust Cam, Piston Cam, Piston Crown, Crosshead Pin, Cylinder Cover, Gear Wheel, Gear Rim, Intermediate Shaft, Propeller Shaft, Rudder Stock, Lower Pintle</i>						
SPP Youlchon Energy Co., Ltd., Jeollanam-do	Steel Forgings*	Non-ABS	-	41,000 kg	ODF	-
<i>*Shaft, Rudder Stock, Intermediate Shaft, Propeller Shaft, Pintle, Cylinder Cover, Piston Crown, Piston Head, Piston Rod, Cross Head, Connecting Rod, Crank Throw.</i>						
SYF Co, Ltd., Kyungnam	Steel Forgings*	Non-ABS	930 mm	12,000 kg	ODF and Ring Rolling	-
<i>Piston Crown, Cylinder Cover, Chain wheel, Crosshead Pin, Flange, Coupling Bolt, Gear Ring, Gear Shaft (C/C-Mn and Low Alloy Steel).</i>						
Tae Heung Forging Co., Ltd., Busan	Steel Forgings*	Non-ABS	-	5,000 kg	Drop Forging, Rolled Forging	-
<i>*Ring, Rudder Stock, Shaft, Flange, Gearing</i>						
Tae Hung Metal Co., Ltd., Busan	C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	10 kg	CDF	-
<i>*Block &amp; High Pressure Block</i>						
Tae Sang Co., Ltd., Busan	Steel Forgings*	Non-ABS	3,000 mm	20,000 kg	ODF, Drop Forging, Rolled Forging	-
<i>*Piston Crown, Cylinder Cover, Main Journal, Crosshead Pin, Chain Wheel, Connecting Rod, Piston Rod, Pintle, Rudder Stock, Shaft, Ring, Flange, Bolt, Nut</i>						
Taewoong Co., Ltd., Noksan, Factory, Busan	Steel Forgings	Non-ABS	10,000 mm	90,000 kg	ODF, Drop Forging, Rolled Forging	-
<i>*Rudder Stock, Pintle, Propeller Shaft, intermediate Shaft, Piston Crown, Cylinder Cover, Main Journal. Crosshead Pin, Chain Wheel, Connecting Rod, Piston Rod</i>						

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<u>SOUTH KOREA</u>						
Unison Co., Ltd., Sacheon	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	65,000 kg	ODF, Ring Rolling	-
<i>*Connecting Rod, Main Journal, Shaft, Disc, Ring, Shell</i>						
Wonil F&T Co., Ltd., Kyungnam	Carbon, C-Mn, Low Alloy & Stainless Steel Forging*	Non-ABS	-	12,000 kg	ODF / Ring Rolling	-
<i>*Shaft, Ring, Disk, Flange, Cylinder Cover, Piston Crown, Piston Rod, Cross Head Pin, Connecting Rod</i>						
Woosung Company, Busan	Carbon, Low Alloy & Stainless Steel Forgings*	Non-ABS	-	13.4 kg	CDF	-
YCF Co., Ltd., Kimhae, Korea	Carbon, C-Mn, Low Alloy Steel Forgings*	Non-ABS	-	15,000 kg (Shaft) / 10,000 kg (Flange, Ring)	ODF, Ring Rolling	-
<i>*Shaft, Flange, Bearing,</i>						
Yonghyun Base Materials Co., Ltd. (2nd Plant - Yangsan)	Forged Round Bar	Non-ABS	1,200 mm	10,000 kg	ODF	-
Yonghyun Base Materials Co., Ltd., Busan	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	Ø: 2,000 mm (ODF) / Ø: 6,300 mm (Ring Rolling)	80,000 kg (ODF) / 20,000 kg (Ring Rolling)	ODF / Ring Rolling	-
<i>*Cylinder Cover, Piston Crown, Piston Rod, Crosshead Pin, Connecting Rod, Main Journal, Propeller Shaft, intermediate Shaft, Rudder Stock, Coupling, Ring Flange, Gear Ring, Chain Wheel, Bolt, Nut</i>						
<u>SPAIN</u>						
Euskal Forging S.A., Irura (Guipuzcoa)	Steel Forgings	Non-ABS	-	10,000kg	ODF, Ring Forging	-

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<u>SPAIN</u>						
Euskal Forging, Fabrica de Sestao, Vizcaya <i>Rings and Flanges</i>	Steel Forgings	Non-ABS	8,000mm	30,000kg	ODF, Ring Forging	-
FORJAS ALBISU SA , LAZAKO	STEEL FORGINGS	NON ABS	-	10,000 kg ODF , 600 kg RING ROLLING	ODF, RING ROLLING	-
Forjas De Cantabria S.L. <i>*Crankshaft, Hook, Flange</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	340 kg	ODF	-
Forjas Irizar S.L., Lazkao <i>*Crain Hook, Lifting Appliance Accessories, etc.</i>	Steel forgings*	Non-ABS	-	5,000kg	ODF, Drop Forging	-
Gerdau Aceros Especiales Europa S.L Reinosa <i>Fiished and semifinished products 9 shafts pintles rudder Stock etc</i>	Marine & Offshore Steel forgings	Non ABS	-	14,000 kg	odf,cdf	-
Talleres Gainza S.A., Cestonia <i>*Flange, Nozzle, Pipe, Cover</i>	Carbon, Alloy & Stainless Steel Forgings*	Non-ABS	-	45,000 kg	ODF, Rolled Forging	-
<u>SWEDEN</u>						
Bharat Forge Kilsta, Karlskoga <i>Crankshafts</i>	Steel Forgings	Non-ABS	-	170 kg	CDF	-
Scana Bjerneborgs AB <i>ABS Grade 4 Forged Shafts and Offshore Components</i>	Steel Forgings	ABS	-	60,000 kg	ODF	-

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<u>SWEDEN</u>						
Scana Sodenfors AB, Sodenfors <i>ABS Grade 2, 3, 4 &amp; 4C Forgings.</i>	Steel Forgings	ABS & Non-ABS	450mm	6,000 kg	ODF	-
<u>SWITZERLAND</u>						
IMBACH & CIE AG, NEBIKON	FERROUS AND NON FERROUS	NON ABS	-	3000,00KG (ODF) , 100KG (CDF) , 2,500 ( RING)	ODF, CDF , RING FORGING	-
Schmiedewerk Stooss AG, Hedingen <i>*Spools, Cylinders, Couplings, Sleeves, Hubs, Flanges, Rings.</i>	Ferrous and Non-Ferrous Forgings*	ABS & Non-ABS	-	Forged Ring 4500kg, OD 5000kg, Hammer Forged 150kg	ODF, Hammer Forged, Forged Ring	-
<u>TURKEY</u>						
Akmetal Metalurji Endustrisi. A.S., Tuzla-Istanbul <i>*Shaft, Gear, Stock, Pinion, Square, Bar</i>	Carbon, C-Mn, Low & High Alloy Steel Forgings*	ABS	-	6,000 kg	ODF	-
Asil Celik Sanayi ve Ticaret A.S., Orhangazi / Bursa	Steel Round Bars	Non-ABS	220mm	-	Forged Bars	EAF
Kanca el Aletleri ve Dovme Celik San. A.S., Kocaeli <i>*Connecting Rod, Crank Shaft, Coupling Bolt, Bolt, Stud, Pad, Hook</i>	Carbon & Low Alloy Steel Forgings*	Non-ABS	-	35 kg	CDF	-

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<u>U.S.A.</u>						
A. Finkl & Sons Co., Chicago, IL <i>*Shaft, Gear Blank, Ring, Roll-Shells, Intermediate Shaft, Upper Drum</i>	Carbon, Low Alloy & Stainless Steels*	ABS & Non-ABS	255 mm (10")	45,000 kg (100,000 lb)	ODF	-
AJAX Rolled Ring and Machine	Low Alloy Steel Forged Rings	Non-ABS	Ø: 3,050 mm (120"); H: 610 mm (24")	1,500 kg (3,300 lb)	ODF	-
ATI Portland Forge, Portland, Indiana <i>*Gear Blank, Axle Blank</i>	Carbon & Low Alloy Steels*	Non-ABS	-	60 kg (135 lbs)	CDF / Drop Forging	-
ATI Specialty Materials - Baker South, Monroe, NC	Forged Stainless Steel Bars	Non-ABS	206 mm (8.125")	3,630 kg (8,000 lb)	Radial Forging	-
Boltex Mfg. Co., Houston, TX	Rough Forged Steel Crankshafts	Non-ABS	-	910 kg (2,000 lb)	CDF	-
Canton Drop Forge, Canton, Ohio <i>*Gear, Shaft, Spur Gear-Shaft, Multiple Spur Pinion</i>	Carbon, Low & High Alloy Steel Forgings*	Non-ABS	-	240 kg (530 lbs)	CDF	-
Clifford-Jacobs Forging Co., Champaign, IL <i>*Gear, Wheel</i>	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	318 mm (12.5")	360 kg (800 lb)	CDF	-
Ellwood Mill Products, New Castle, PA <i>*Crankshaft</i>	Steel Forgings*	Non-ABS	1,650 mm (65")	36,300 kg (80,000 lb)	ODF	-

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<u>U.S.A.</u>						
Ellwood Texas Forge Houston, TX	Carbon, Low & High Alloy Steel Forgings*	Non-ABS	-	2,300 kg (5,000 lb)	ODF / CDF	-
<i>*Gear, Shaft, Spun Gear-Shaft, Multiple Spur Pinion</i>						
Forged Components Inc. (FCI), Humble, TX	Steel Forgings *	Non-ABS	-	15000 kg and 7000 kg *	ODF	-
<i>*Carbon/Alloy Steel (15000 kg) and Austenitic Stainless Steel (7000 kg) - Blocks, Cylinder, Sleeves, Disk, Hubs, Rings, Shafts.</i>						
Hammond & Irving, Inc., Auburn, NY	Low Alloy Steel Forged Rings	Non ABS	-	70 kg (150 lb)	ODF, Rolled Ring Forging	-
LeHigh Heavy Forge	Machinery Steel	ABS & Non-ABS	-	146000	ODF	-
Milwaukee Forge, LLC, Wisconsin	Carbon, C-Mn & Low Alloy Steel Forgings*	Non-ABS	-	45 kg (100 lbs)	CDF, Drop Forging	-
<i>*Gear, Shaft, Yoke, Flange</i>						
North Jackson Speciality Steel, LLC, North Jackson, OH	Stainless & Precipitation Hardened Steel Bars	Non-ABS	-	6,800 kg (15,000 lb)	ODF	-
Ringmasters, Wayne, MI	Machinery Steel Forgings	ABS	3.2m(OD), 3.0m(ID), 0.60m(Thickne	3,200 kg	Ring Rolling	-
Rotek Incorporated, Aurora, Ohio	Carbon, C-Mn, Low Alloy & Stainless Steel Rings*	Non-ABS	-	6,800 kg (15,000 lbs)	Ring Rolling	-

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<b><u>U.S.A.</u></b>						
Scot Forge, Clinton, Wisconsin	Steel, Copper,Nickel, Aluminum & Titanium Forgings	ABS & Non-ABS	-	22,700 kg, (50,000 lb)	ODF, Ring Rolling	-
<i>*Round Blank, Ring, Hub, Bar, Flat, Round Bar, Hollows, Spindles</i>						
Scot Forge, Franklin Park, Illinois	Steel, Copper,Nickel, Aluminum & Titanium Forgings	ABS & Non-ABS	-	1,360 kg (3,000 lb)	ODF, Ring Rolling	-
<i>*Round Blank, Ring, Hub, Bar, Flat, Round Bar, Hollows, Spindles</i>						
Scot Forge, Spring Grove, Illinois	Steel, Copper,Nickel, Aluminum & Titanium Forgings	ABS & Non-ABS	-	36,300 kg (80,000 lb)	ODF, Ring Rolling	-
<i>*Round Blank, Ring, Hub, Bar, Flat, Round Bar, Hollows, Spindles</i>						
Unit Drop Forge Co., Inc., Westallis	Carbon, Micro-Alloy & Stainless Steel Forgings*	ABS & Non-ABS	-	115 kg (250 lbs)	CDF	-
<i>*Discs and Custom Orders</i>						
<b><u>UKRAINE</u></b>						
JSC Energomashspetsstal	Steel Forgings	Non-ABS	-	60,000 kg	ODF, Hydraulic Press, Cold Rolling	-
<b><u>UNITED KINGDOM</u></b>						
Bifrangi UK Ltd., Lincoln <i>*Crankshaft, Crankpin</i>	Steel Forgings*	Non-ABS	197 mm	580 kg	Drop Forging, CDF	-

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<b><u>UNITED KINGDOM</u></b>						
Somers Forge Ltd., Halesowen	Forge Bar Stock*	Non-ABS	510 mm	-	ODF	-
<i>*For use in production of subsea mooring connectors by First Subsea Limited</i>						
Somers Forge Ltd., Halesowen	Ferrous and Non Ferrous Forgings*	Non-ABS	3,000 mm	50,000 kg (C+C/Mn), 30,000 kg Alloys	ODF	-
<i>*Propeller and Intermediate Shaft, Rudder Stock, Jacking Pinion, Rotor, Coupling, Mandrel, Receptacle</i>						

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