



Improper use of any product may cause serious or fatal injury. Read carefully the operating and safety instructions in your owner's manual before use.



GENERAL CONTACT - dept2@ism.ihi.co.jp URL:www.ihi-shibaura.com/english

# **CORPORATE PROFILE.**

### **IHI Corporation**

The IHI Group legacy began in 1853 with the founding of the Ishikawajima Shipyard. This shipbuilding history was soon expanded as the IHI Group employed its mechanical engineering expertise in a wide variety of fields through the development of machinery for use on land and subsequently in aerospace applications.





### **IHI Shibaura Machinery Corporation**

IHI Shibaura Machinery Corporation is a subsidiary of IHI Corporation and was established in 1950 as a joint venture between Ishikawajima Shipyard and Shibaura Engineering Works, Ltd. This venture was established with the intention of providing Japan and the rest of the world with the most comprehensive engineered products in a wide variety of fields. IHI Shibaura Machinery Corporation is a leader in the design, engineering and manufacturing of Diesel Engines, Compact Tractors and Tractor Components, Golf & Turf Care Products, Fire-Fighting Pumps and Ozone Disinfection Equipment for environmental control systems.



## **Image** Japanese Quality

From our main factory in Matsumoto City in Nagano, Japan, we bring the world the most durable and reliable products on the market, all representing our core values of sincerity, diligence and innovation. Our products are all built to the highest standards and focused on our customers' needs. We satisfy the needs of every professional looking for diesel engines that tackle the tough work with ease while always delivering reliability and value.





# HISTORY OF SHIBAURA .

951	Japan's first Ride-On Tractor AT-III launched.
961	Technical tie-up with Motoren-Werke- Mannheim (MWM)
972	Long term tractor supply agreement with Ford Motor tractor division (now CNH Group).
976	Long term Power Tool supply agreement with STIHL.
985	Long term engine supply agreement with Perkins Engines Ltd .
995	Perkins Shibaura Engines Limited (PSEL) founded as a joint venture with Perkins Group Limite in the UK.
998	EPA Tier 1 diesel engine.
999	Power Tool supply agreement with MTD.
002	Accumulated total engine production reached 1 million units.
004	EPA Tier 2 diesel engine
	2004 Perkins Shibaura Engines LLC (PSEA) founded as a joint venture with Perkins Group Limited in the USA.
007	EPA Tier 3 diesel engine, D series
800	Perkins Shibaura Engines (Wuxi) Company Limited (PSEW) founded in China.
)12	EPA Tier 4 diesel engine, F series , the world's first CRDi Engine without DPF launched.
)13	Accumulated total engine production reached

2.5 million units.



# APPLICATIONS. 4

Shibaura's long lasting diesel engines are widely used in Tractors, Mowers, Excavators, Skid Steer Loaders, Fork Lifts, Backhoes, Outboard Motors, Compressors, Air Conditioners and Generators all over the world.





MINI EXCAVATOR





ZERO-TURN MOWER

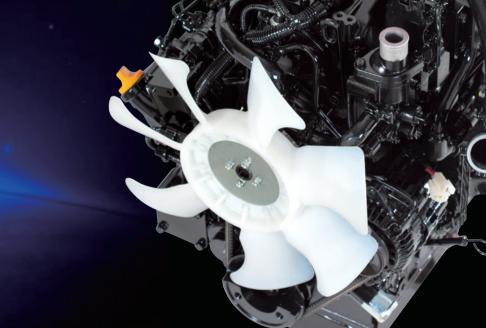


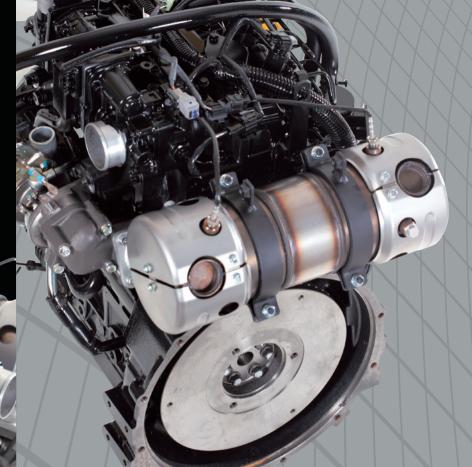


**OUT-FRONT MOWER** 









Shibaura's new engine series uses a High Pressure Common Rail fuel system, a maintenance-free Diesel Oxidation Catalyst (DOC)-only solution and Cooled Exhaust Gas Recirculation to reach EPA Final Tier 4 compliance. Shibaura's solutions offer you simplicity and sustainability in a broad power range for all of your applications.







Cooled EGR (Exhaust Gas Recirculation) System to reduce



High pressure common rail fuel system to reduce the amount of

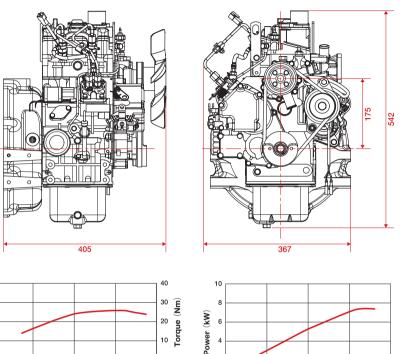


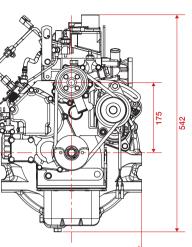
Advanced IHI
Compact turbo charger unit

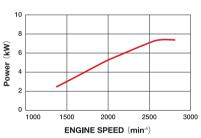
**EPA TIER 4 TECHNOLOGY.** 

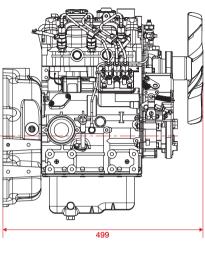
E672L-F | E673L-F



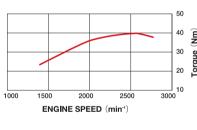


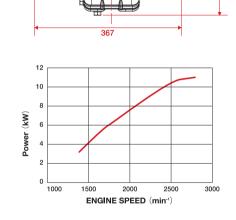






E673L-F



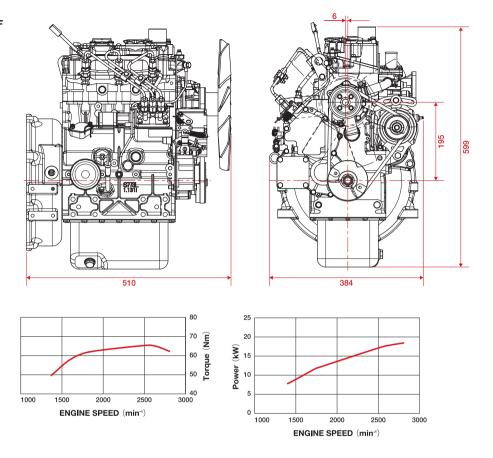


Engine model name		E672L-F	E673L-F			
Cylinder type			Vertical in-line water-	Vertical in-line water-cooled 4 stroke diesel		
The number of cylinders			2	3		
Cylinder bore × stroke		mm	67 :	· 72		
Displacement	Displacement cc			761		
Combustion system		IDI (Swirl-chamber)				
Compression ratio			23.5			
Emission regulation			Tie	er4		
	1800	min-1	_	7.4 (9.9)		
Rated power based on SAE J1995	2200	min-1	5.9 (7.9)	8.8 (11.8)		
(without fan, intake&exhaust resistance).	2400	min <sup>-1</sup>	6.4 (8.5)	9.8 (13.1)		
Equal to EPA kW (HP)	2600	min <sup>-1</sup>	7.0 (9.3)	10.5 (14.0)		
	2800	min-1	7.2 (9.6)	10.9 (14.6)		

ENGINE SPEED (min-1)

Engine model name		E672L-F	E673L-F		
Dry weight (with after treatment syste	em)	kg	58	75	
Weight of after treatment system		kg	-	_	
	Length	mm	405	499	
Dimensions	Width	mm	367	367	
	Height	mm	542	528	
Direction of rotation			CCW (view from flywheel side)		
Cooling system			Radiat	or type	
Lubricating system			Forced lubrication	by hydraulic pump	
Engine oil to be appplied			Equivaler	nt to CH-4	
Fuel		Diesel fuel (ultra low sulfur)			
Governor		Mechanica	I All-speed		
Injection pump		Bosci	n PFR		

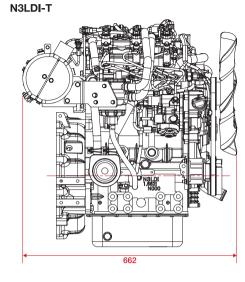


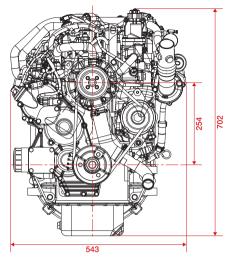


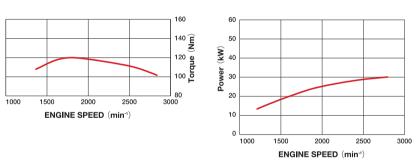
Engine model name		S773L-F	
Cylinder type			Vertical in-line water-cooled 4 stroke diesel
The number of cylinders			3
Cylinder bore × stroke		mm	77 × 81
Displacement		СС	1131
Combustion system		IDI (Swirl-chamber)	
Compression ratio		23.5	
Emission regulation			Tier4
	1800	min <sup>-1</sup>	11.2 (15.0)
Rated power based on SAE J1995	2200	min <sup>-1</sup>	14.4 (19.3)
(without fan, intake&exhaust resistance).	2400	min <sup>-1</sup>	16.1 (21.5)
Equal to EPA kW (HP)	2600	min <sup>-1</sup>	17.3 (23.1)
	2800	min <sup>-1</sup>	18.4 (24.6)

Engine model name		S773L-F	
Dry weight (with after treatment syste	m)	kg	87
Weight of after treatment system		kg	_
	Length	mm	510
Dimensions	Width	mm	384
	Height	mm	599
Direction of rotation			CCW (view from flywheel side)
Cooling system			Radiator type
Lubricating system			Forced lubrication by hydraulic pump
Engine oil to be appplied			Equivalent to CH-4
Fuel			Diesel fuel (ultra low sulfur)
Governor			Mechanical All-speed
Injection pump		Bosch PFR	

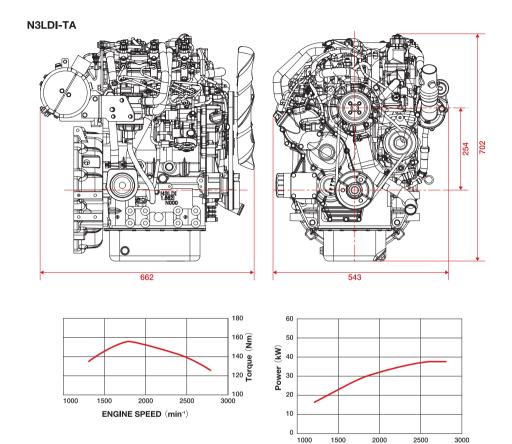
N3LDI-T | TA







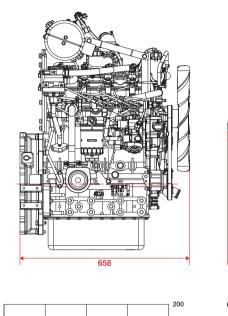
Engine model name			N3LDI-T	N3LDI-TA	
Cylinder type			Vertical in-line water-cooled 4 stroke diesel		
The number of cylinders			3		
Cylinder bore × stroke		mm	84 × 1	00	
Displacement		СС	166	2	
Combustion system			Common-rail DI 18.0		
Compression ratio					
Emission regulation			Tier4,Stage III B		
	1800	min-1	20.0 (26.8)	25.0 (33.5)	
Rated power based on SAE J1995	2200	min-1	25.0 (33.5)	30.0 (40.2)	
(without fan, intake&exhaust resistance).	2400	min-1	27.0 (36.2)	32.0 (42.9)	
Equal to EPA kW (HP)	2600	min-1	29.0 (38.9)	35.0 (46.9)	
	2800	min-1	30.0 (40.2)	37.0 (49.6)	
Dry weight (with after treatment syste	kg	192			
Weight of after treatment system	kg	72			

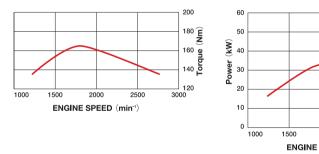


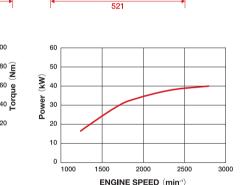
Engine model name		N3LDI-T	N3LDI-TA		
	Length	662			
Dimensions	Width	mm	543		
	Height	mm	7	'02	
Direction of rotation			CCW (view fro	m flywheel side)	
Cooling system		Radiator type	Radiator type (with Charge air cooler)		
Lubricating system			Forced lubrication by hydraulic pump		
Engine oil to be appplied			API CJ4 Low Ash Oil		
Fuel			Diesel fuel (ultra low sulfur)		
Governor			Common-rail system (CAN-bus compliant)		
Injection pump			High pro	essure CR	
	Basic s	trategy	HPCR		
Fasianian anntus	NOx reduction		Cooled EGR		
Emission control	Active reg	eneration	No need		
	Emission purification		DOC		

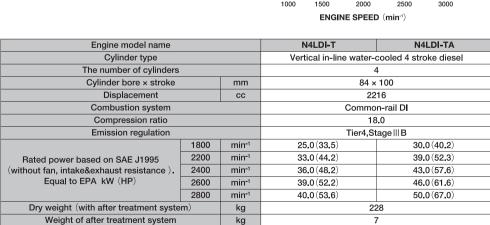
ENGINE SPEED (min-1)

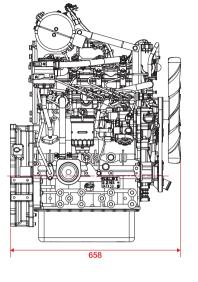
#### N4LDI-T

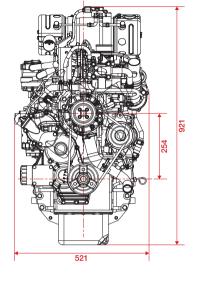


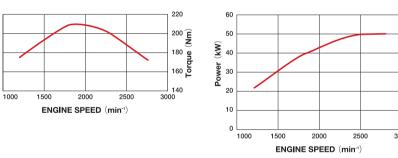












Engine model name		N4LDI-T	N4LDI-TA		
	Length	mm	658		
Dimensions	Width	mm	521		
	Height	mm	92	21	
Direction of rotation			CCW (view from	n flywheel side)	
Cooling system			Radiator type	Radiator type (with Charge air cooler)	
Lubricating system		Forced lubrication by hydraulic pump			
Engine oil to be appplied			API CJ4 Low Ash Oil		
Fuel			Diesel fuel (ultra low sulfur)		
Governor			Common-rail system (CAN-bus compliant)		
Injection pump			High pressure CR		
	Basic strategy		HPCR		
Emission control	NOx reduction		Cooled EGR		
Linission Control	Active regeneration		No need		
	Emission purification		DOC		

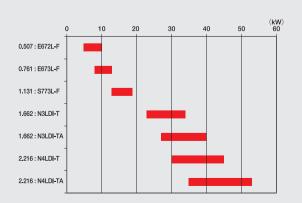
7

### DIESEL ENGINE TIER 4 FINAL PRODUCT LINE

Engine model name		E672L-F	E673L-F	S773L-F	N3LDI-T	N3LDI-TA	N4LDI-T	N4LDI-TA		
Cylinder type			Vertical in-li	ne water-cooled 4 s	stroke diesel	V	Vertical in-line water-cooled 4 stroke diesel			
The number of cy	linder	s	2		3	3 4				
Cylinder bore × st	roke	mm	67 × 72 77 × 81				84 ×	100		
Displacement		СС	508	761	1131	16	62	2	216	
Combustion system				IDI (Swirl-chamber)			Commo	n-rail DI		
Compression rati	io			23.5			18	.0		
Emission regulati	ion			Tier4			Tier4,St	ageIIIB		
Rated power based	1800	min <sup>-1</sup>	_	7.4 (9.9)	11.2 (15.0)	20.0 (26.8)	25.0 (33.5)	25.0 (33.5)	30.0 (40.2)	
on SAE J1995 (without	2200	min <sup>-1</sup>	5.9 (7.9)	8.8 (11.8)	14.4 (19.3)	25.0 (33.5)	30.0 (40.2)	33.0 (44.2)	39.0 (52.3)	
fan, intake&exhaust resistance).	2400	min <sup>-1</sup>	6.4 (8.5)	9.8 (13.1)	16.1 (21.5)	27.0 (36.2)	32.0 (42.9)	36.0 (48.2)	43.0 (57.6)	
Equal to EPA kW	2600	min <sup>-1</sup>	7.0 (9.3)	10.5 (14.0)	17.3 (23.1)	29.0 (38.9)	35.0 (46.9)	39.0 (52.2)	46.0 (61.6)	
(PS)	2800	min <sup>-1</sup>	7.2 (9.6)	10.9 (14.6)	18.4 (24.6)	30.0 (40.2)	37.0 (49.6)	40.0 (53.6)	50.0 (67.0)	
Dry weight (with after treatme	nt system)	kg	58	75	87	19	92	2	228	
Weight of after treatment system kg		kg		_		7				
_	Length	mm	369	443	453	670 (DOC r	ear mount)	764 (DOC	rear mount)	
	Width	mm	385		384	53		35		
	Height	mm	52	23	600	7	15	730		
Direction of rotat	ion		CCW	CCW (view from flywheel side)			CCW (view from flywheel side)			
Cooling system				Radiator type		Radiator type	Radiator type (with Charge air cooler)	Radiator type	Radiator type (with Charge air cooler	
Lubricating syste	m		Forced I	Forced lubrication by hydraulic pump			Forced lubrication	by hydraulic pump	)	
Engine oil to be a	ppplie	d		Equivalent to CH-4			API CJ4 Lo	ow Ash Oil		
Fuel			Dies	sel fuel (ultra low su	lfur)		Diesel fuel (ultra low sulfur)			
Governor			N	/lechanical All-speed	d	Common-rail system (CAN-bus compliant)				
Injection pump				Bosch PFR		High pressure CR				
	Bas		Injection cont	rol depend on barom	netric pressure	HPCR				
Emission control	NO reduc			_		Cooled EGR				
	Acti regene			-			No n	need		
	Emiss			_			DC	)C		







### DIESEL ENGINE TIER 4 INTERIM PRODUCT LINE

Series		E SE	RIES	S SE	S SERIES N SERIES				
Model		E672L-D	E673L-D	S773L-D	S774L-D	N843-D	N844L-D	N844LT-D	
Engine Type		Vertical 4 Strok	e Diesel Engine	Vertical 4 Stroke Diesel Engine		Vertical 4 Stroke Diesel Engine		Ingine	
No. of Cylinders		2	3	3	4	3		4	
Bore and Stroke	mm	67 × 72		77 :	× 81	84 × 90	84 >	84 × 100	
Displacement	СС	507 761		1131	1508	1496	2216		
Combustion Syste	em	IDI (Swirl	Chamber)	IDI (Swirl	Chamber)		IDI (Swirl Chamber)	)	
Compression Rati	0	23	3.5	23	3.5		22.5		
	1500min <sup>-1</sup>	4.0 (5.4)	6.1 (8.3)	9.3 (12.6)	_	13.3 (18.1)	20.3 (27.6)	25.6 (34.7)	
	1800min <sup>-1</sup>	4.9 (6.6)	7.6 (10.3)	11.6 (15.8)	_	15.8 (21.5)	23.8 (32.4)	31.1 (42.2)	
Net Power	2200min <sup>-1</sup>	6.1 (8.3)	9.4 (12.8)	14.4 (19.6)	19.1 (25.9)	20.0 (27.2)	30.1 (40.9)	37.7 (51.3)	
kW (PS)	2600min <sup>-1</sup>	7.1 (9.7)	11.0 (15.0)	16.8 (22.8)	22.7 (30.8)	22.3 (30.3)	34.5 (46.9)	41.5 (56.4)	
(JIS D0006)	2800min <sup>-1</sup>	7.6 (10.3)	11.8 (16.0)	17.9 (24.3)	24.6 (33.5)	23.0 (31.3)	35.4 (48.1)	42.8 (58.2)	
	3000min <sup>-1</sup>	8.1 (11.0)	12.5 (17.0)	19.0 (25.8)	26.5 (36.0)	23.4 (31.8)	35.7 (48.5)	43.2 (58.7)	
	3600min <sup>-1</sup>	9.2 (12.5)	14.3 (19.4)	21.1 (28.7)	29.9 (40.6)		_		
	1500min <sup>-1</sup>	3.6 (4.9)	5.6 (7.6)	8.7 (11.8)	_	12.1 (16.5)	18.5 (25.2)	23.2 (31.6)	
Continuous Rated Power	1800min <sup>-1</sup>	4.5 (6.1)	6.9 (9.4)	10.8 (14.7)	_	14.4 (19.6)	21.7 (29.5)	28.2 (38.4)	
kW (PS) (JIS B8014)	3000min <sup>-1</sup>	7.4 (10.1)	11.4 (15.5)	17.1 (23.2)	23.9 (32.4)	20.2 (27.5)	27.1 (36.8)	_	
(313 66014)	3600min <sup>-1</sup>	8.4 (11.4)	13.1 (17.8)	19.2 (26.1)	26.9 (36.6)	21.1 (28.7)	_		
Dry Weight	kg	58	75	87	106	150	195	203	
Length×Width×Hight	mm	369 × 385 × 523	443 × 385 × 523	453 × 384 × 600	550 × 380 × 575	534 × 459 × 657	637 × 453 × 678	666 × 516 × 725	
Rotation		CCW (view fror	n flywheel side)	CCW (view from flywheel side)		CCW (view from flywheel side)			
Cooling System		Water cooling with W	/ater Pump & radiator	Water cooling with W	/ater Pump & radiator	radiator Water cooling with Water Pump & radia		p & radiator	
Coolant Capacity		1.1	1.3	1.9	2.5	2.7	3	.6	
Lubricating Syster	n	Force Lu	brication	Force Lubrication		Force Lubrication			
Lubrication Oil		10W-30, CC or	DE Grade (API)	10W-30, CC or	DE Grade (API)	10W-30, CC or DE Grade (API)			
Lubrication Oil Capacity	Oil Capacity Lit 2.1 3.1		3.1	4.9	5.3	6.0	10.6		
Starting System	ting System Electric Starting with Glow Plug (12V-0.8kW)		Electric Starting with Glow Plug (12 V -1.4kW)		Electric Starting with Glow Plug (12V-2.0kW)				
Alternator	V-A	12-14		12-40		12-40			
Fuel		No.2 Diese	l Fuel (JIS)	No.2 Diese	l Fuel (JIS)	No.2 Diesel Fuel (JIS)			
Governing System		Mechanical All-Sp	eed with Angleich	Mechanical All-Sp	eed with Angleich	Mechan	ical All-Speed with	Angleich	
Injection Pomp		Bosch In-	Line Type	Bosch In-	Line Type		Bosch In-Line Type		
Battery (Recommend)	V-Ah	12-35	12-45	12	-65	12-70 12-100		100	





