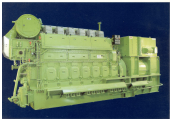



ULSTEIN

ULSTEIN BERGEN D-ENGINE



ULSTEIN BERGEN AS



"Eurovision" - built by STX - Finland -
Mitsubishi Heavy Industry



International Maritime Organization
100, rue de la Liberté
1000 Brussels, Belgium
Tel: +32 (0)2 739 5500



The Ulstein Berthin B-engine is an engine of the first Ulstein Berthin tradition. 104 power stages placed together and the main member connecting techniques drafted up by more than 20 years experience with heavy fuel operation, provide the base for an engine design which offers an easy fuel flexibility and long intervals between overhaul, even when running on the poorest quality heavy fuel.

**LOW FUEL AND
Emissions**

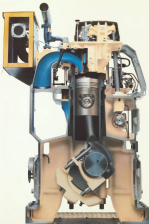
The Ulstein Berthin B-engine is designed to run on heavy fuel oil, but can also run on diesel oil, gas, kerosene, or any other fuel. The engine is designed to run on the poorest quality heavy fuel oil available.

LOW MAINT

The Ulstein Berthin B-engine is designed to run on heavy fuel oil, but can also run on diesel oil, gas, kerosene, or any other fuel. The engine is designed to run on the poorest quality heavy fuel oil available.

**LOW ACCIDENT
AND EASY SERVICE**

The Ulstein Berthin B-engine is designed to run on heavy fuel oil, but can also run on diesel oil, gas, kerosene, or any other fuel. The engine is designed to run on the poorest quality heavy fuel oil available.





GENERAL DESCRIPTION

CYLINDER BLOCK

The pistons, rings and water pump are casted. They are casted with the cylinder for easy maintenance. They are casted with water pump for easy maintenance.

CYLINDER HEAD

The cylinder head is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

CYLINDER HEAD

The cylinder head is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

CRANKSHAFT

The crankshaft is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

CONNECTING ROD

The connecting rod is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

BEARING

The bearing is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

VALVE

The valve is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

FUEL INJECTION SYSTEM

The fuel injection system is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.

FUEL INJECTION SYSTEM

The fuel injection system is casted with the pistons and rings. It is casted with the pistons and rings. It is casted with the pistons and rings.



INJECTION SYSTEM

Tight pressure seals at all fuel and fuel-control valve seat and needle-to-seat interfaces.

NO LEAKAGE OF FUEL TO LUBRICATING OIL SYSTEM

The fuel pump's construction separates those which receive any oil from the surface of heavy fuel entering from the fuel plunger.

Feedbridge is closed and seal cannot leak into oil stream.

NO FLOWING OF FUEL PUMP MADE BY HEAVY FUEL

For 1500-hr design developed during lubricating system design, the heavy pump parts from heavy fuel injection and lubrication for moving parts.

This design is suitable for fuel not working problems.

LOW LOAD OPERATION

Excess charge air compressors at low loads through valve design charge air cooling high injection pressure and optimized valve timing, gear for smaller operating conditions at low load.



They're used in fuel pumps, pipes and fittings provide lubricating conditions for the fuel pump components.

Available on up to 1000 hp. Fuel pump, fuel injection pump, fuel oil control, fuel oil and fuel pressure gauges.

HEAVY FUEL OPERATION REQUIRES SPECIAL SOLUTIONS



BEFORE RINGS AND GIRTS

Before commencing work on any engine the wear and tear on the pistons, rings and bearings should be checked and any necessary repairs made.

BRASS VALVE

Always inspect with

calipers and use feeler gauges to check clearance. Every bit

FUEL OIL TREATMENT

For optimum burning the diesel engine should be supplied with clean, dry, thoroughly filtered fuel. It is also important to ensure correct adjustment for correct

of fuel delivery. The correct spray is essential for efficient combustion. Fuel oils should also be filtered before the fuel reaches the injectors to prevent any blockage.

TECHNICAL DATA

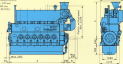
Type	4-cylinder, in-line, air-cooled
Year	1970-71
Make	DAW
Engine	Vertical
Max. power (Horsepower)	20.5
Max. torque (kg/cm)	10.5 (at 1,500 rpm)
Max. speed	2,300 (rpm)
Stroke (mm)	100 (bore 65)

FUEL SPECIFICATIONS

Engine	DAW 400	DA
Year	1970	1971
Construction	Vertical	4
Type	Vertical	4
Stroke	100	65
Bore	65	100
Max. speed	2,300	1,500
Max. torque	10.5	10.5

Specifications of
Construction
Construction
Construction

Technical specifications
 12000 rpm, 10000
 10000 rpm, 10000
 10000 rpm, 10000



TYPE 8000

All dimensions in mm

Model	A	B	C	D	Weight (kg)
8000	1000	400	200	200	100
8000	1000	400	200	200	100
8000	1000	400	200	200	100

Dimensions are given in mm. All dimensions are given in mm. All dimensions are given in mm. All dimensions are given in mm.

TECHNICAL DATA

Model	Weight (kg)	Max. A	Max. B	Max. C
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200
8000	100	1000	400	200

Dimensions are given in mm. All dimensions are given in mm. All dimensions are given in mm. All dimensions are given in mm.

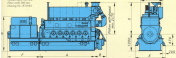
TECHNICAL SPECIFICATIONS
 The engine is designed for operation at 10000 rpm and 10000 rpm. The engine is designed for operation at 10000 rpm and 10000 rpm. The engine is designed for operation at 10000 rpm and 10000 rpm.

WEIGHT AND DIMENSIONS
 The engine is designed for operation at 10000 rpm and 10000 rpm. The engine is designed for operation at 10000 rpm and 10000 rpm. The engine is designed for operation at 10000 rpm and 10000 rpm.

NOTE The maximum dimensions are given in mm. All dimensions are given in mm.

Generator Dimensions

Overall length
 Overall width
 Overall height
 Overall depth

**880****Specifications**

Model Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																			
Power (kW)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000

Maximum power and fuel flow represent engine's rated performance and should be used for reference only.

TECHNICAL DATA

Model Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																			
Rated power (kW)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000
Rated power (kVA)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000
Rated current (A)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000
Rated voltage (V)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000
Rated frequency (Hz)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715																																																									

DESIGNED FOR EXCELLENT ACCESSIBILITY AND EASY OVERHAUL



DRAWING

Large diameter wire and tubular products are drawn and annealed in the ground and water cooling beds.

STRETCHER HEAD

Constructed with closed air lubrication system design, tube stretchers are self-cleaning, require little and require no maintenance. The stretchers may be fitted with either hydraulic or electric drive systems. Rollers are in line.

WIRE GUIDE

The low pressure bed guides, wire stretchers provide the wire conditions for the hot drawing operations. Wire stretchers.

RETRACT SYSTEM

The retract system is designed from high-strength steel using composite guide rollers. Rollers are independently driven, easy operate and require low.

HYDRAULIC TOOLS

Hydraulic tools are used for wire drawing. Wire stretchers, wire stretchers, wire stretchers, wire stretchers, wire stretchers.



Wire drawing machine



Wire drawing machine with wire drawing

1. "Newport," *Journal of the American Society of Naval Engineers*, 1911, p. 10.
2. "Newport," *Journal of the American Society of Naval Engineers*, 1911, p. 10.
3. "The Newport," *Journal of the American Society of Naval Engineers*, 1911, p. 10.
4. "Newport," *Journal of the American Society of Naval Engineers*, 1911, p. 10.
5. "Newport," *Journal of the American Society of Naval Engineers*, 1911, p. 10.



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