

ENGINE PROGRAM

Diesel engines up to 60 kW





THE ENGINES

The aim of the construction and development at HATZ is to implement features which characterise each HATZ engine

Economical

Two essential features are characteristic for the economic efficiency of HATZ diesel engines: their optimum fuel-consumption and their incomparably long service lives.

Safe in operation and reliable

Even in extreme climatic conditions, HATZ engines have proved maximum operating safety. HATZ engines are famous for their good starting behaviour, even at low temperatures.

Robust and durable

HATZ engines have been designed for a long service life and robustness. This is ensured by top quality material and workmanship. Even non-experts will find it easy to operate and service HATZ engines.

For universal application

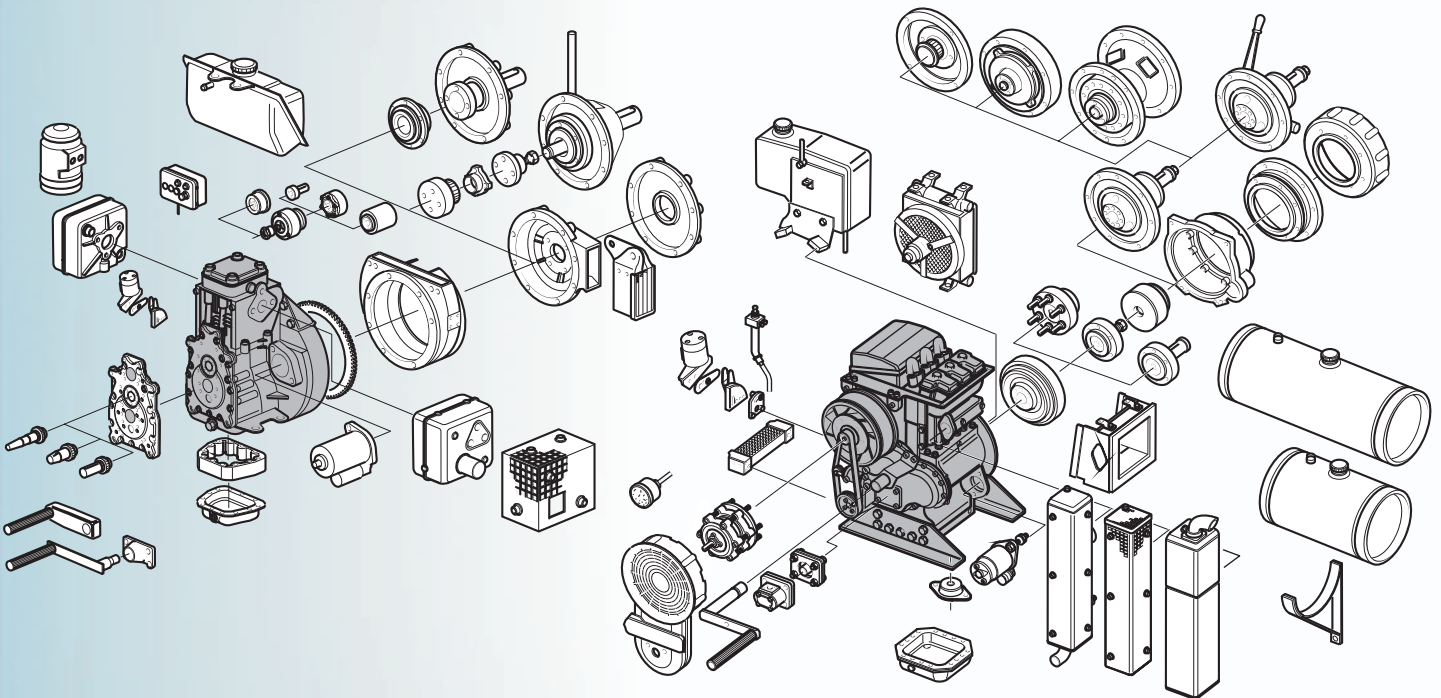
The compact design, the high number of power take-off variants and an ample range of accessories offer the ideal solution for each field of application.

Environmentally friendly

For many years, HATZ has led the way in the development of environmentally friendly diesel engines. Particularly with regard to reducing noise and pollutant emission, HATZ research has scored extraordinary success. HATZ engines dispose of exhaust emission certificates of the European Union: 97 / 68 EU, for mobile working machinery in the USA: EPA, CARB for nonroad mobile machinery. As well as according to regulation ECE No. 24 (not available for all engines).

THE ACCESSORIES

More than 700 options, according to requirements, are available.



THE POWER RANGE



Engine selection

Do not always choose the highest number of revolutions; a lower number of revolutions increases the maintenance intervals and the service life, and noise. In case of long-term operation of more than 1,500 service hours per year, the number of revolutions should not exceed 2,600 rpm.

Calculation of the required engine power

The power demand of the driven machine often cannot be determined exactly, therefore, allowance must be made for safety reserve capacities, as well as for altitude and ambient temperature, if they differ from the standard*.
 (DIN ISO 3046 / I, 100 m above sea level, +25°C, 30% relative humidity)
 (ISO 1585 / 1000 mbar, +25° C)

Example

P_G Power demand of the driven machine

f_s = factor "safety reserve capacity"
f_H = factor "altitude"
f_T = factor "temperature"

Required power **P_M** = **P_G** x **f_s** x **f_H** x **f_T**

P_G = 16.5 kW

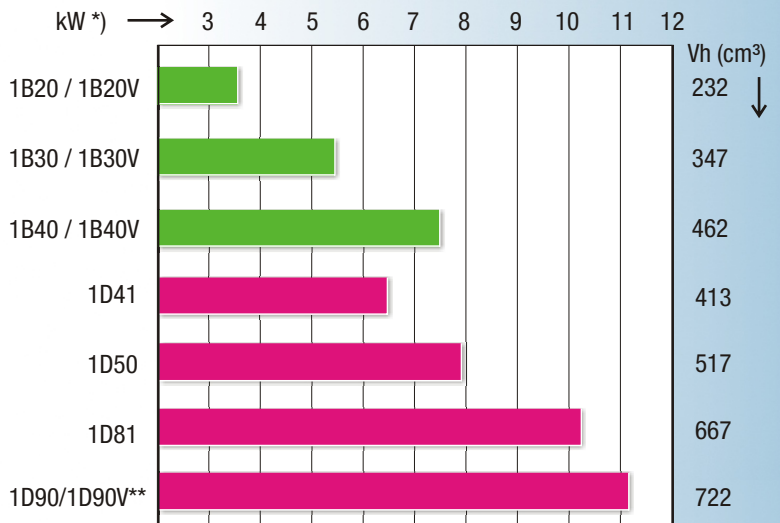
at 30 °C at 1,300 m altitude above sea level,
 safety reserve capacity 5 %

f_s = 1.05 · **f_H** = 1.14 · **f_T** = 1.01

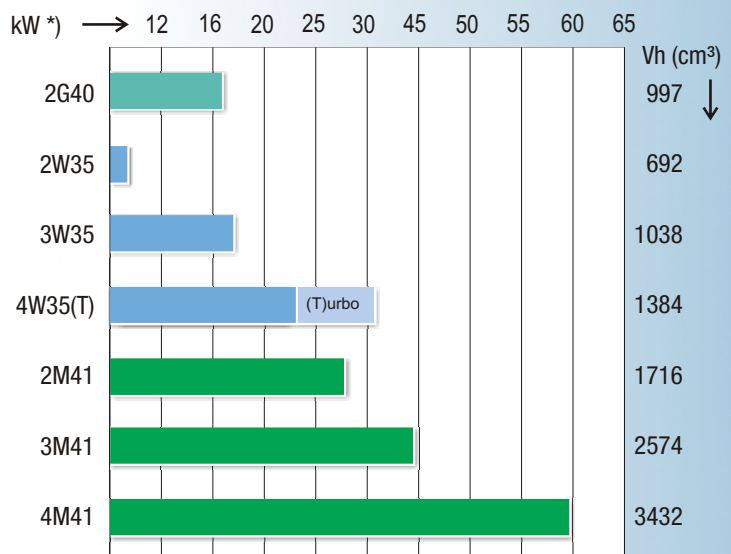
P_M = 16.5 x 1.05 x 1.14 x 1.01 = **20 kW**

Safety reserve capacity	%	0	5	10	15	20	25	30
	f _s	1.00	1.05	1.10	1.15	1.20	1.25	1.30
Altitude above sea level	m	100	300	500	1000	1300	1500	1800
	feet	330	1000	1600	3300	4300	5000	6000
	f _H	1.00	1.02	1.06	1.10	1.14	1.16	1.21
Ambient temperature	°C	25	28	31	33	35	38	43
	°F	80	85	90	95	100	105	115
	f _T	1.00	1.01	1.02	1.03	1.04	1.06	1.08

SINGLE-CYLINDER-DIESEL ENGINES

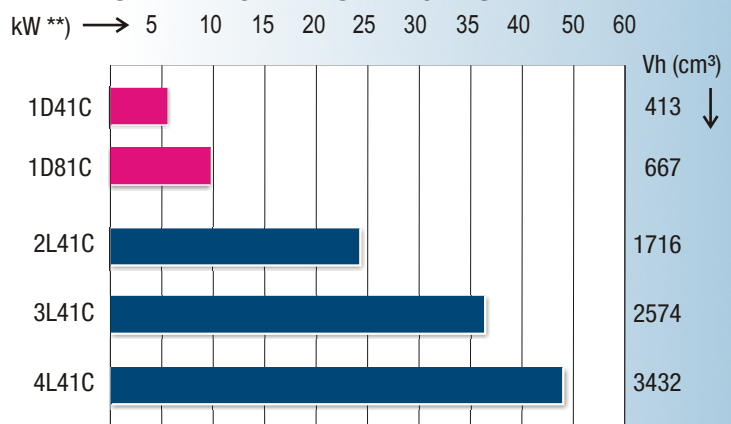


MULTI-CYLINDER DIESEL ENGINES



*) ISO 1585

SILENT PACK - DIESEL ENGINES



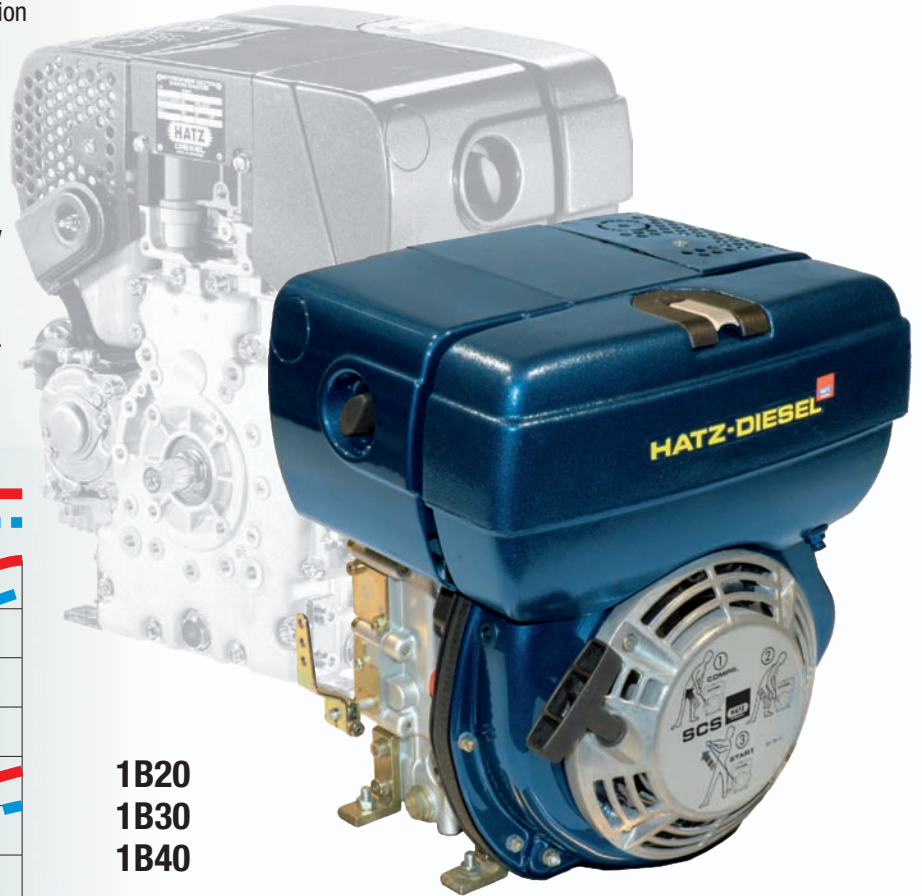
***) DIN ISO 3046 / part I



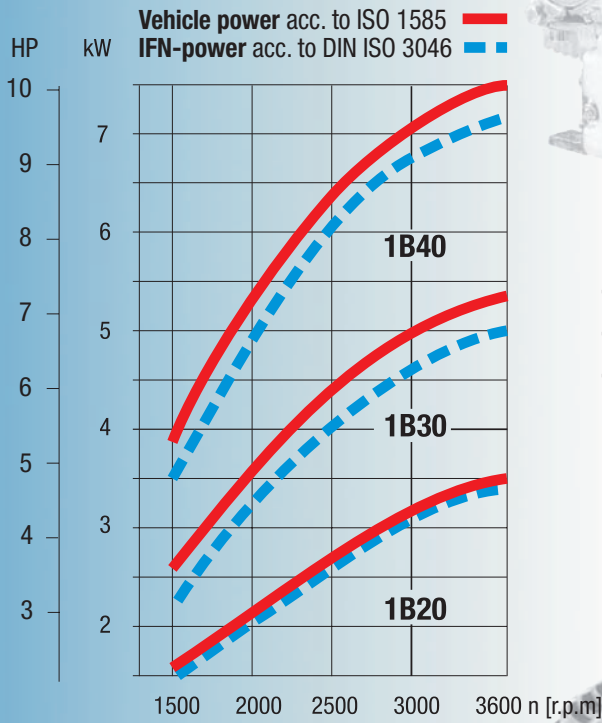
1B20 • 1B30 • 1B40 • 1B20V • 1B30V • 1B40V

The Challenger

- small, light-weight, for universal application
- air-cooled with flywheel blower fan
- forced-feed circulating lubrication
- Single Cam System (SCS)
- recoil- and/or electric start 12 V and 24 V
- V design: Vertical crankshaft engine
- engine type 1B40 with additional counter balance system available

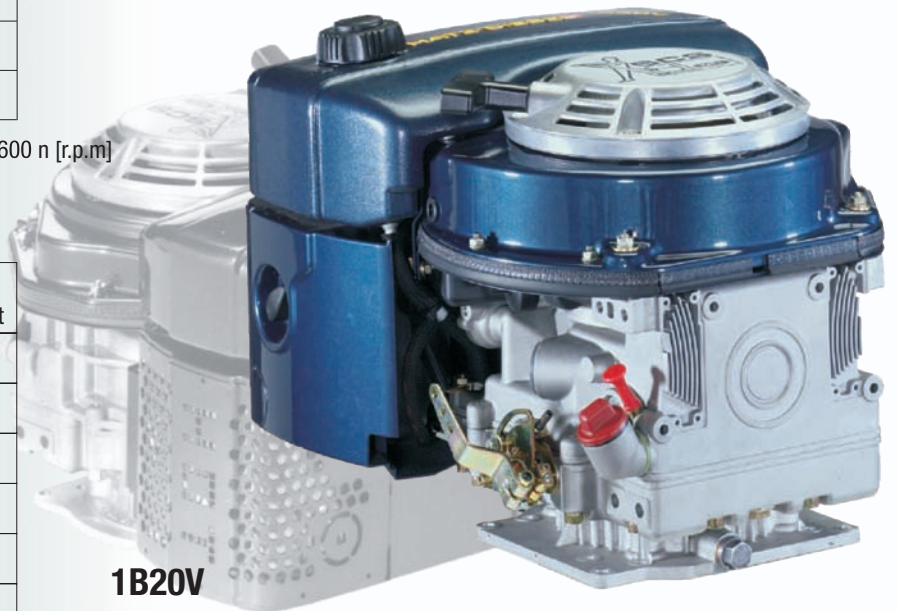


1B20
1B30
1B40



Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Length	Width	Height
1B20	232	28	272	361	401
1B30	347	33	298.5	370	431
1B40	462	48	316	392	480
1B20V	232	30	430	360	341
1B30V	347	35	460	370	367
1B40V	462	50	485	394	392



1B20V
1B30V
1B40V

1D41. • 1D50.



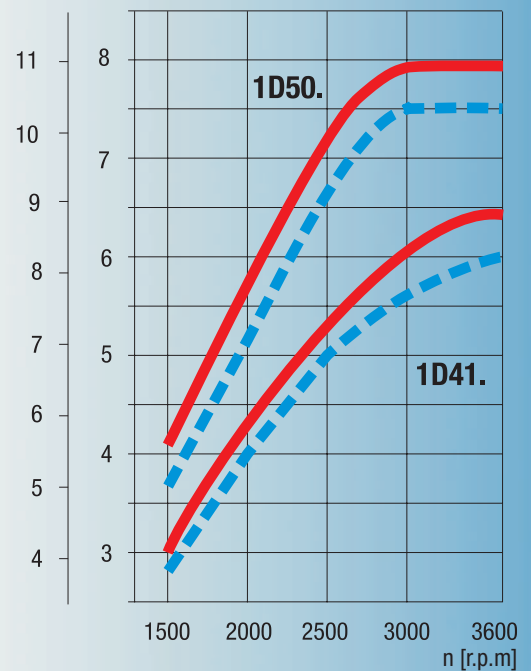
SUPRA

- revolutionary technology for single-cylinder diesel engines
- air-cooled with flywheel blower fan
- forced-feed circulating lubrication
- at choice, 50 % or 100 % balancing of higher-order inertia forces
- crank handle start or electric start 12V / 24V



1D41 / 50 S (with 50% inertia balancing)
1D41 / 50 Z (with 100% inertia balancing)

Vehicle power acc. to ISO 1585 —
 HP kW IFN-power acc. to DIN ISO 3046 - - -



Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Length	Width	Height
1D41	413	68	343.5	463	522
1D50	517	69	341.5	463	532.5



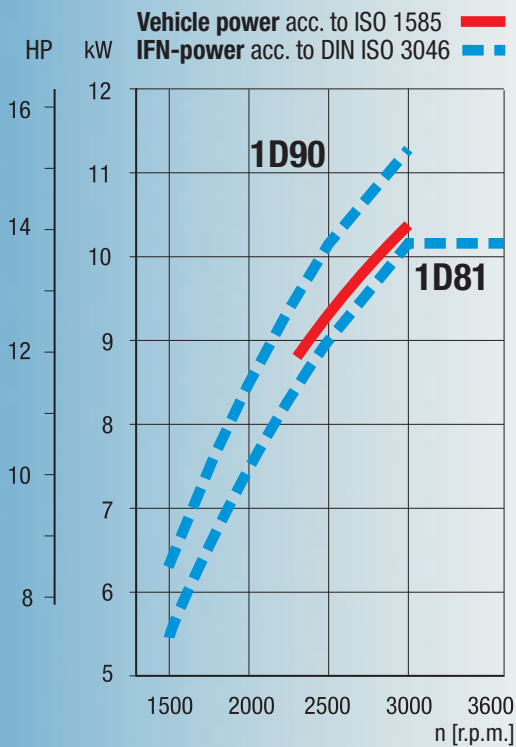
1D81. • 1D90.

SUPRA

- revolutionary technology for single-cylinder diesel engines
- air-cooled with flywheel blower fan
- forced-feed circulating lubrication
- at choice, 50 % or 100 % balancing of higher-order inertia forces
- V / W: vertical crankshaft engine
- crank handle start or electric start 12V / 24V

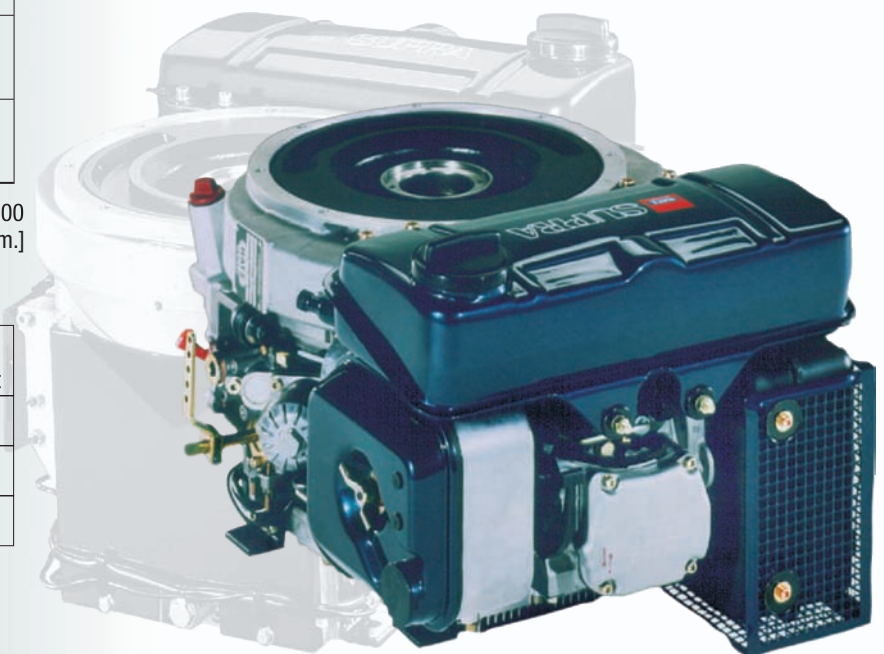


**1D81 S
1D81 Z
1D90 S
1D90 Z**



Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Lenght	Width	Height
1D81	667	77	360	506.5	614.5
1D90	722	86	360	506.5	614.5
1D90V	722	86	582	512.5	429



**1D90 V
1D90 W**

1D41C • 1D81C

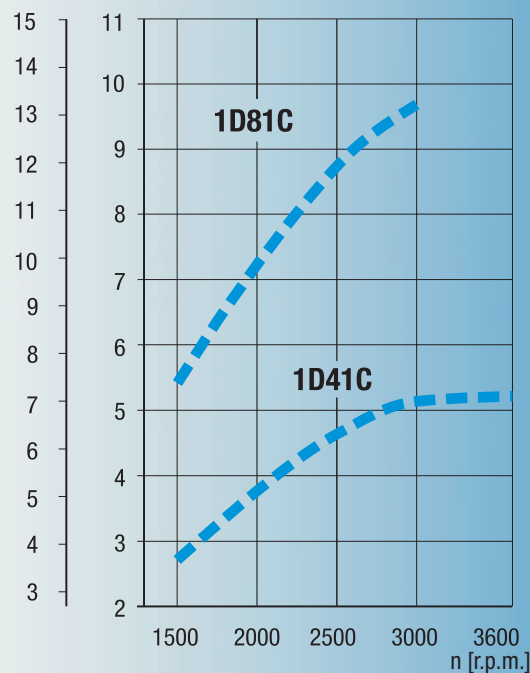


SUPRA SILENT PACK

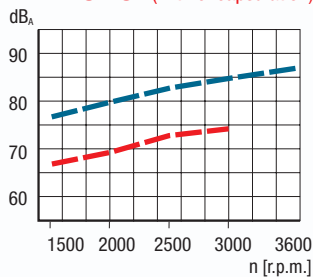
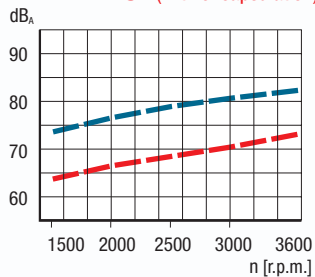
- supra is the first single-cylinder diesel engine series world-wide which can be equipped with an organically adapted, noise-reducing encapsulation.
- crank handle start or electric start 12V / 24V.



HP kW IFN-power acc. to DIN ISO 3046



1 D 41 . (without encapsulation) 1 D 81 . (without encapsulation)
 1 D 41 C (with encapsulation) 1 D 81 C (with encapsulation)



Average noise level L_{pA} at a distance of 7 m (dB)
 At full load according to DIN ISO 3046/1 IFN,
 including intake and exhaust noise,
 Tolerance ± 1dB.

Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Length	Width	Height
1D41C	413	89	467	508	504
1D81C	667	107	512	530	590

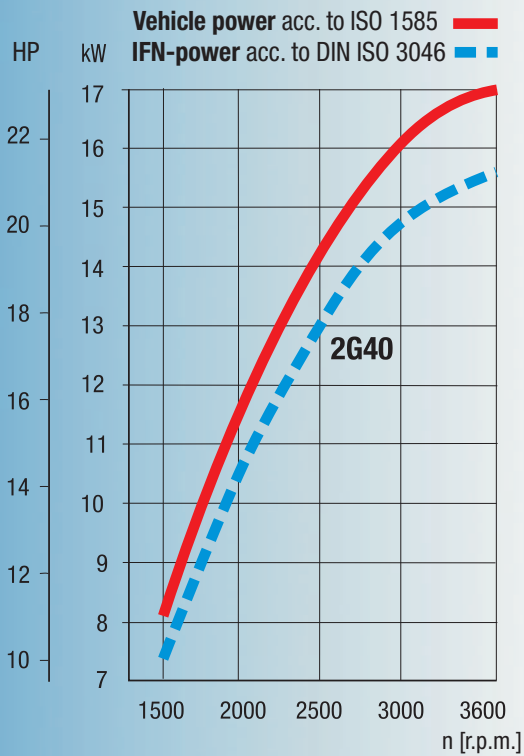
HATZ Silent Pack engines are the quietest DIESEL ENGINES FOR INSTALLATION of their class and, above all, ready for application.



2 G 40

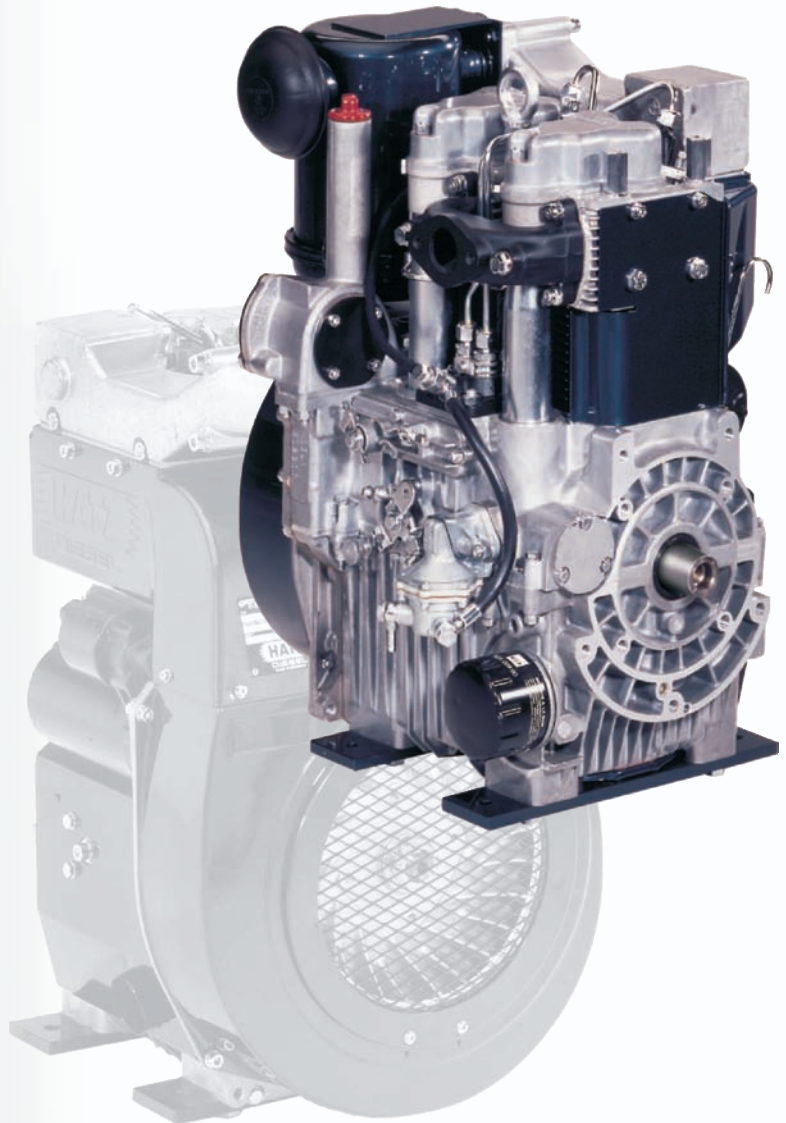
The two-cylinder power pack

- sets new standards for compact size and power/weight ratio.
- air-cooled with flywheel blower fan
- forced-feed circulating lubrication



Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Lenght	Width	Height
2G40	997	89	582	461	587



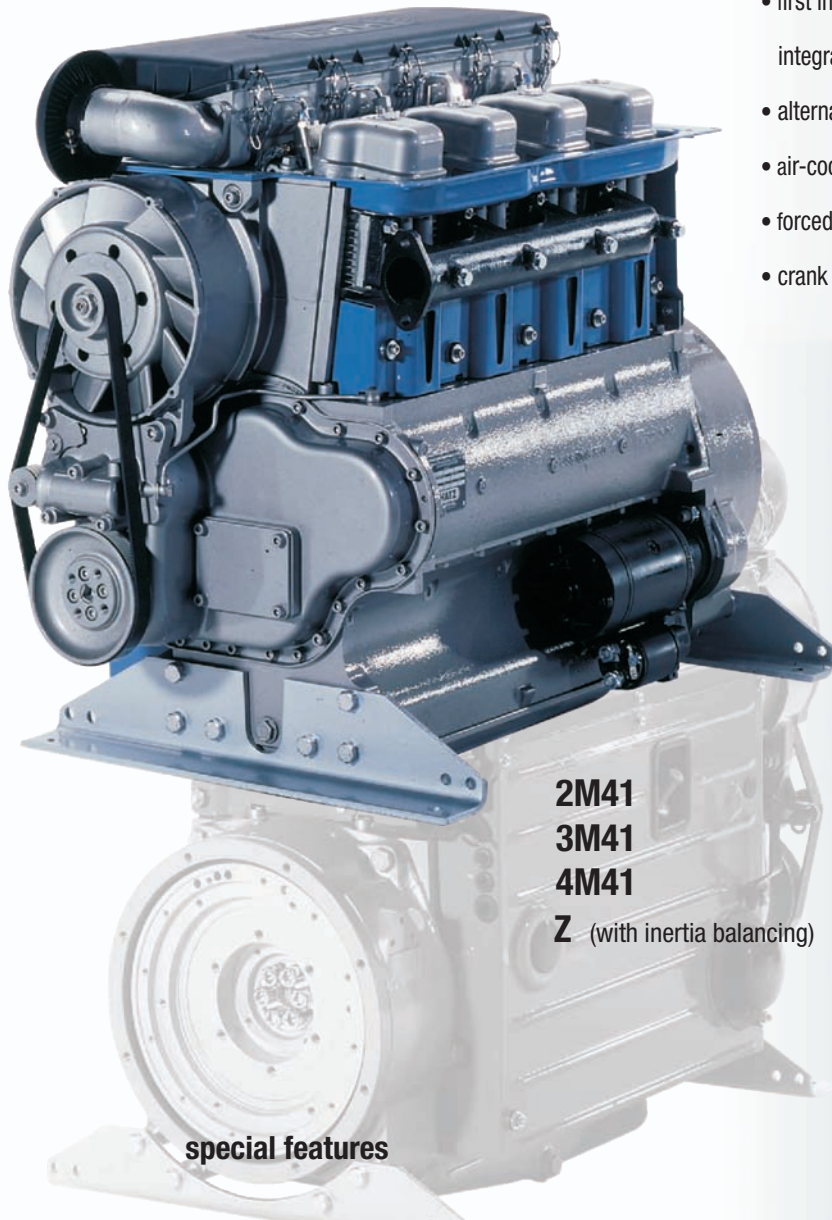
2G40: standard engine with electric starter 12 V or 24 V

2G40H: additional power take-off with gear wheels for hydraulic

2M41 • 3M41 • 4M41



Multi-cylinder diesel engines of modular design

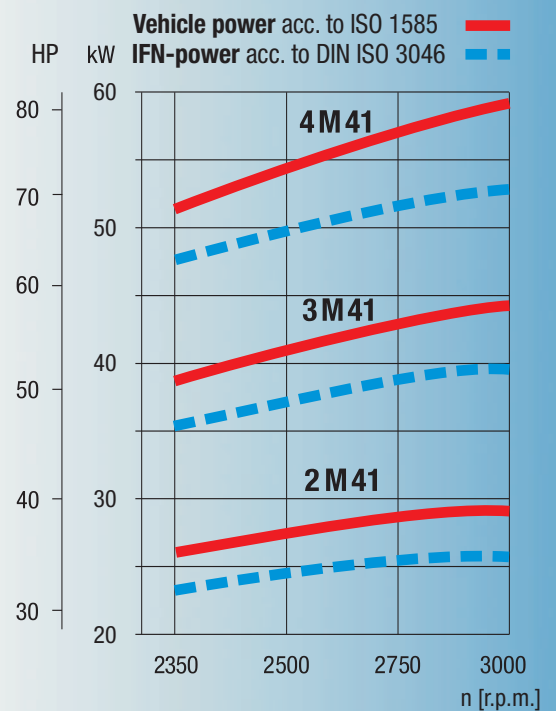


- first industrial engine world-wide with integrated automatic engine-protection feature
- alternatively with (model Z) and without counter balance
- air-cooled with axial blower
- forced-feed circulating lubrication
- crank handle start or electric start 12V / 24V

2M41
3M41
4M41
Z (with inertia balancing)

special features

- gear wheels to drive the camshafts
- hydraulic pump power take-off directly on the crankshaft
- blower fan drive with mechanically acting automatic shutoff
- mechano-hydraulic automatic engine-protection feature
- suppression of start smoke



Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Length	Width	Height
2M41	1716	223	618	570	733
3M41	2574	255	753	570	733
4M41	3432	291	888	570	733

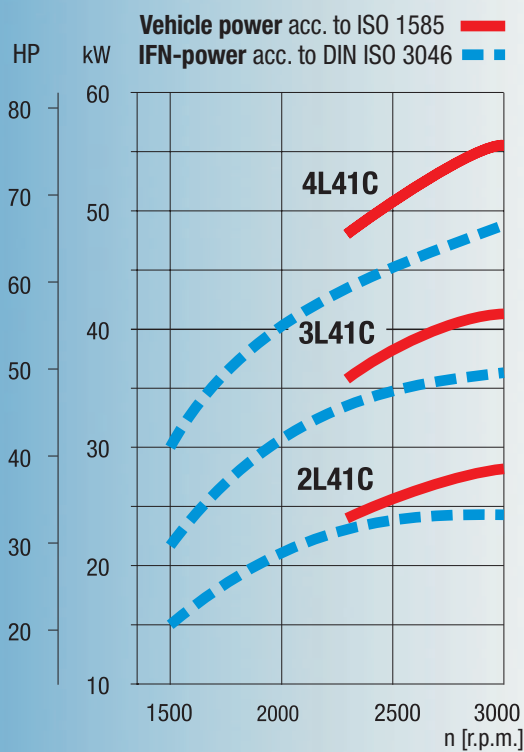


2L41C • 3L41C • 4L41C

The program's culmination

SilentPACK

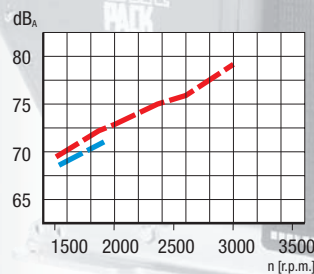
- automatic engine-protection feature
- air-cooled with axial blower
- forced-feed circulating lubrication
- with additional counter balance system



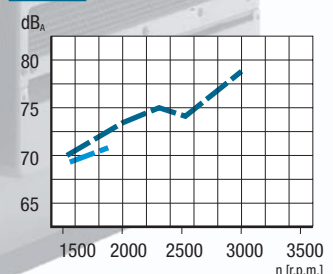
Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Length	Width	Height
2L41C	1716	276	719	596	748
3L41C	2574	331	854	596	748
4L41C	3432	396	989	596	748

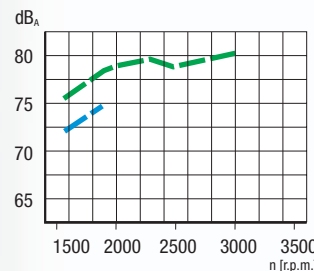
2L41C



3L41C



4L41C



----- Optional tapered screen insert to exhaust

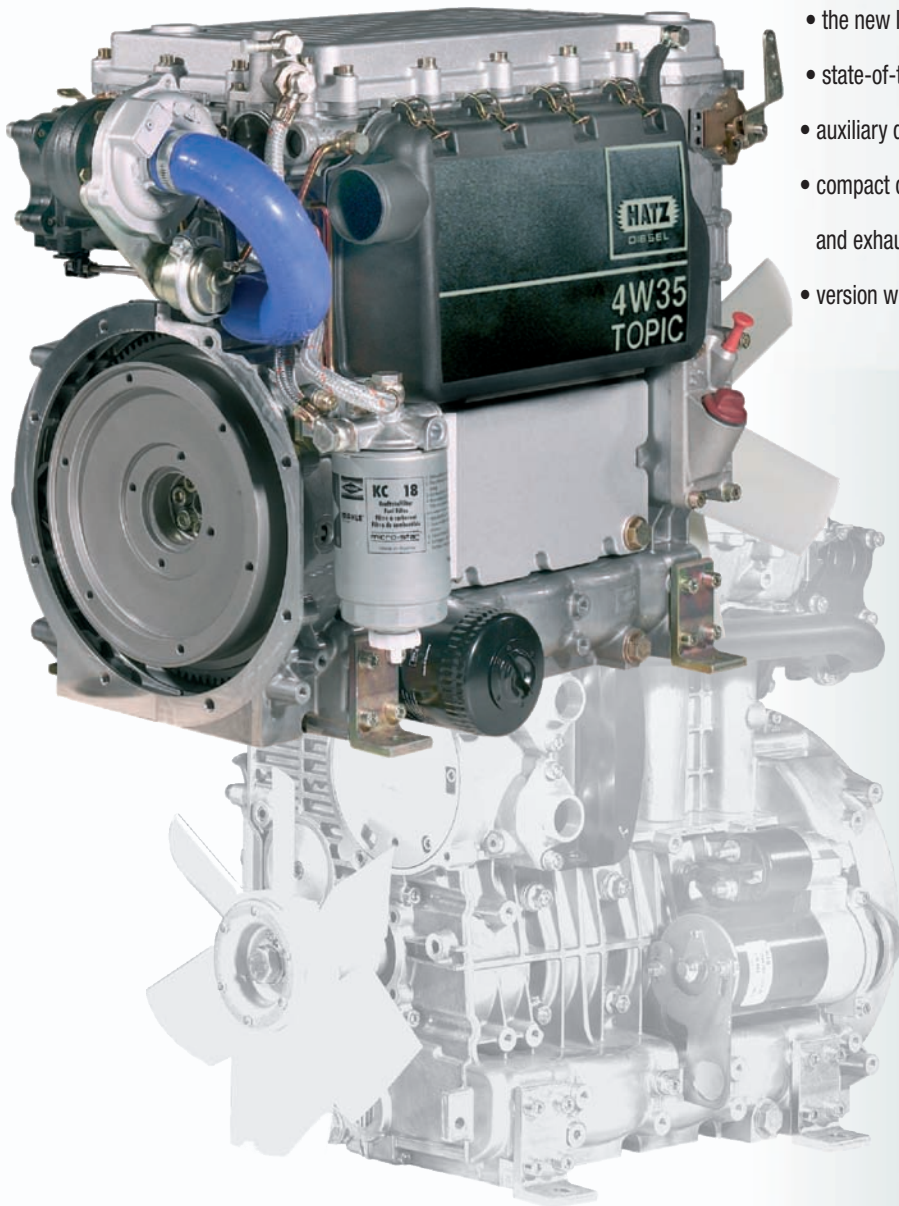
Average noise level LpA at a distance of 7 m (dB)
 At full load according to DIN ISO 3046/I IFN,
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HATZ Silent Pack engines are the quietest diesel ENGINES FOR INSTALLATION of their class and, above all, ready for application.

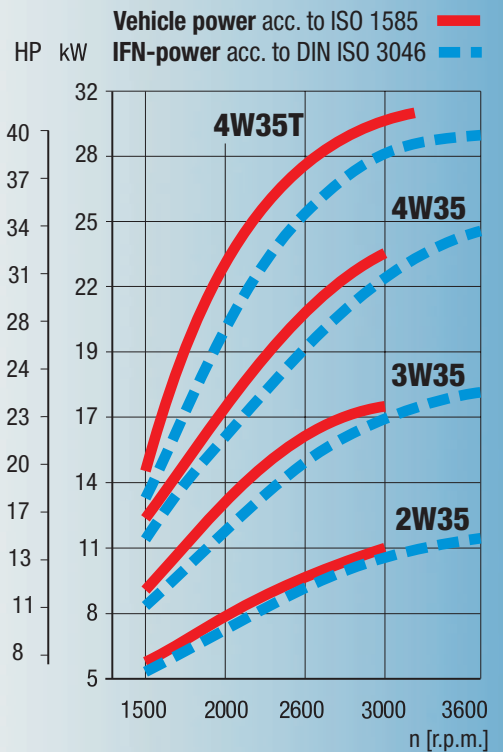
2W35 • 3W35 • 4W35



W35 TOPIC



- the new liquid-cooled series
- state-of-the art injection equipment with pump / nozzle unit
- auxiliary drive via gear-wheels and timing chain (low maintenance)
- compact dimensions due to integrated air-filter and exhaust silencer (optional)
- version with exhaust-gas turbocharger available (model T)



Dimensions

Engine type	Piston displacement (ccm)	Weight (kg)	Dimensions (mm)		
			Length	Width	Height
2W35	692	71	363	410	517
3W35	1038	85	442	410	517
4W35	1384	99	525	410	517
4W35T	1384	104*	645	410	517

* without exhaust silencer

- compact** due to an optimum component design.
- light-weight** due to the use of cast aluminium for all parts of the housing.
- silent** due to optimization of the housing structures via the finite elements method, and application of our internally developed noise reduction technology.
- perfectly designed** due to clearly structured contours.



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