



HYDAC Fluid Technology Compact Power Units Overview AC / DC



EMDAD INTERNATIONAL



DCM

DC1

CO1

CO2

CO3

CA2

HP

ML

HYDAC Compact Power Units

For over 25 years, HYDAC Fluidtechnik has been building compact power units which in these changing times have remained at the cutting edge of technological development. They are noted generally for their compact installation dimensions and high power density. Starting from 0.32 l/min, there are many different models to provide tailor-made solutions for the customer.

	bar 100 200	300 400	500	l/min 5 10 15 20 25 30
<u>(DC</u>)	Up to 250 bar	up to 5.6 l/min		DC power units for controlling tail-lifts ar
	Short-time duty	S2 = starting at 1	min*	other robust mobile applications. Can be
	Intermittent duty	S3 = starting at 3	3 %*	installed in three positions – particularly
		J		splashproof
	bar 100 200	3001 400 1	500	
	Up to 250 bar	up to 18 4 l/min	500	DC power units for controlling tail-lifts
	Short-time duty	$S_2 = starting at 1.1$	5 min*	storage and retrieval machines, working
ATTA T	Intermittent duty	$S_2 = starting at 1.$	1 0/.*	slotage and retrieval machines, working
	internitient duty	33 = starting at 4	+ /0	plationns, lorkints etc
	10 to 1			
	6			
	bar 100 200	♦ 300 400	500	<u>I/min 5 10 15 ₹20 25 30</u>
	Up to 250 bar			Power unit with low installation height ar
	Short-time duty	$S2 = 5 min^{\circ}$		transparent oil tank (steel tank available
1E	Intermittent duty	S3 = <mark>20 %*</mark>		an option). For scissor-lift platforms, doc
				levellers, machine tools, wind turbines,
	See All Street			vehicle hoists
	bar100 200	300 400	500	1/min 5 10 15 20 25 30
	Up to 250 bar	up to <mark>20</mark> l/min		AC power unit with steel tank for more
	Short-time duty	$\dot{S2} = 5 \text{ min}^*$		robust applications, e.g.
	Intermittent duty	S3 = 25 %*		energy technology, points switching.
	Continuous-opera	ition**		machine tools
	periodic duty	$S6 = 25 \%^*$		(**with cooler module)
	bar100 200		500	
	Lin to 250 bar	up to 30 l/min	5001	Modular power units in AC or 3-phase
	Short-time duty	$S_{2} = 10 \text{ min}^{*}$		design with all conditioning concent and
V.V.V	Intermittent duty	$S_2 = \frac{10}{20.07 *}$		design with on conditioning concept and
	Continuous opera	33 = 30%		energy-enicient single or double pump u
	Continuous-opera			e.g. for lathes, machine tools
	periodic duty	<mark>56 = 30 %</mark>		N1 N1
	bar 100 200	300 400	500	<u>l/min5 10 ♦ 15 20 25 30</u>
	Up to 250 bar	up to 12.6 l/min		Power unit concept with oil-immersed
	Short-time duty	$S2 = 3 \text{ min}^{\circ}$		motorpump unit. Particularly suitable for
	Intermittent duty	S3 = 10 %*		outdoor use, e.g. in traffic barriers, dock
				levellers, for points switching
	bar100 200	300 400	500	l/min5 ↓ 10 15 20 25 30
	Up to 500 bar	up t <mark>o 5.25</mark> l/min		High-pressure hydraulics in the most
	Short time duty	S2 = 3 min*		compact space.
	Short-time duty			
a a a a a a a a a a a a a a a a a a a	Intermittent duty	S3 = 10 %*		Three-phase power unit, e.g. for clamping
	Intermittent duty	S3 = 10 %*		Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation
	Intermittent duty	S3 = 10 %*		Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation
	Intermittent duty	S3 = 10 %*	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation I/min5 10 15 20 25 30
	bar100 200 Up to 500 bar	$S_3 = 10 \%^*$ <u>3001 400 1</u> up to 12 l/min	<u>500</u>	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation
	bar100 200 Up to 500 bar	S3 = 10 %* 3001 400 1 up to 12 l/min	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation
	bar100 200 Up to 500 bar	S3 = 10 %* 300 400 up to 12 l/min	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation //min5 10 15 20 25 30 Modular valve stacking system for high pressure hydraulics. For expansion of th control functions of HP compact power
	bar100 200 Up to 500 bar	S3 = 10 %* 300 400 J up to 12 l/min	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation //min5 10 15 20 25 30 Modular valve stacking system for high pressure hydraulics. For expansion of th control functions of HP compact power units
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	bar100 200 Up to 500 bar	S3 = 10 %* 3001 400 1 up to 12 l/min 3001 400 1 up to 20 l/min	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation //min5 10 15 20 25 30 Modular valve stacking system for high pressure hydraulics. For expansion of th control functions of HP compact power units.
	bar100 200 Up to 500 bar Up to 350 bar	S3 = 10 %* 3001 400 1 up to 12 l/min 3001 400 1 up to 20 l/min	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation //min5 10 15 20 25 30 Modular valve stacking system for high pressure hydraulics. For expansion of th control functions of HP compact power units.
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	bar100 200 Up to 500 bar	S3 = 10 %* 3001 400 1 up to 12 l/min 3001 400 1 up to 20 l/min	500	Three-phase power unit, e.g. for clampin of forming tools, brake calliper operation //min5 10 15 20 25 30 Modular valve stacking system for high pressure hydraulics. For expansion of th control functions of HP compact power units.
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Up to 250 bar Up to 5.6 I/min Short-time duty S2 = from 1 min* Intermittent duty S3 = starting at 3 %*

HYDAC Compact Power Units with DC Motor DC Mobile

GENERAL

- Maximum protection against salt and spray through the use of specially formed plastic parts such as tank and cowl
- Reduction in noise emissions achieved with vibration-resistant plastic casing
- Can be installed in 3 different positions without having to undertake any modifications
- Outputs of 1.2 to 2.2 kW in 12 and 24 Volt DC, and 3 different tank sizes are possible due to modular design



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SPECIFICATIONS	
Flow rate:	2.5 to 5.6 l/min
Operating pressure:	max. 200 bar
Peak pressure:	up to max. 250 bar
Duty cycle:	S2 (short-time duty)
Motor:	Pn = 1.2 kW 2.2 kW
Motor voltages:	12 and 24 Volt
Protection class:	DIN EN 60034-5 min IP 54
Pump displacement:	0.8 cm ³ /rev 2.6 cm ³ /rev
Tank volume:	4.0 7.5
Useable volume:	2.2 - 6.3
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm²/s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Convection cooling
Weight:	from 9 to 12 kg
Return flow rate:	up to max. 20 I/min
Installation position:	Vertical, horizontal, horizontal on side
Further details in Brochure No. 5.309.0	

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Up to 250 bar Up to 18.4 I/min Short-time duty S2 = starting at 1.5 min* Intermittent duty S3 = starting at 4%*

HYDAC Compact Power Units with DC Motor DC1

- Space-saving design due to small flange
- Very low noise levels due to special construction
- Possible to have different hydraulic controls in the same flange due to flexible configuration of cartridge valves and / or by fitting control blocks and standard function modules



Flow rate:	up to 18.4 l/min
Operating pressure:	max. 250 bar
Peak pressure:	up to max. 300 bar (on request)
Duty cycle:	S2 (short-time duty)
	S3 (intermittent duty)
Motor:	Pn = 1.7 kW 3.0 kW
Motor voltages:	12 and 24 Volt
Protection class:	DIN EN 60034-5 min IP 54
Pump displacement:	1.0 cm ³ /rev 8.0 cm ³ /rev
Tank volume:	1.8 - 8.4
Useable volume:	1.2 - 7.8
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 - 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Convection cooling
Weight:	from 15 to 25 kg
Return flow rate:	up to max. 40 l/min
Installation position:	Vertical, horizontal



Up to 250 bar Up to 20 l/min Short-time duty Intermittent duty

S2 = 5 min* S3 = 20%*

HYDAC Compact Power Units with 3-Phase Motor CO1

- Space-saving design due to small flange
- Possible to have different hydraulic controls in the same flange due to flexible configuration of cartridge valves and / or by fitting control blocks and standard function modules
- Very low noise levels due to special construction



SPECIFICATIONS	- 9 - E
Flow rate:	up to 20 l/min
Operating pressure:	max. 250 bar
Peak pressure:	up to max. 300 bar (on request)
Duty cycle:	S2 (short-time duty)
	S3 (intermittent duty)
Motor:	Pn = 0.37 kW 3.0 KW (4; 5.5 KW upon request)
Motor voltages:	3 Ph. 230/400V -50 Hz (others on request)
Protection class:	DIN EN 60034-5 min IP 54
Pump displacement:	1.0 cm³/rev 10.0 cm³/rev
Tank volume:	1.8 – 8.4 l
Useable volume:	1.2 – 7.8 l
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Convection or air cooling
Weight:	from 12 to 20 kg
Return flow rate:	up to max. 40 l/min
Installation position:	Vertical, horizontal
Further details can be found in Brochu	re No. 5.306.0



Up to 250 barUp to 20 l/minShort-time duty $S2 = 5 min^*$ Intermittent duty $S3 = 25\%^*$ Continuous-operationperiodic duty $S6 = 25\%^*$ (with cooler module)

HYDAC Compact Power Units with 3-Phase Motor CO2

- Compact and lightweight power packs achieved through the use of progressive motors and aluminium flanges
- Robust version through the use of metal tank
- Wide variety of controls using standard function modules
- Easy to maintain as control valves are easily accessible
- Low-noise version



TOW Tale.	
Operating pressure:	max. 250 bar
Peak pressure:	up to max. 300 bar (on request)
Duty cycle:	S2 (short-time duty)
	S3 (intermittent duty)
	S6 (continuous-operation periodic duty)
Aotor:	Pn = 0.37 kW 5.5 kW
Notor voltages:	3 Ph. 230/400V -50 Hz (others on request)
Protection class:	DIN EN 60034-5 min IP 54
Pump displacement:	1.0 cm ³ /rev 10.0 cm ³ /rev
ank volume:	2.5 – 16.6 I (steel tank, square: 19 I)
Jseable volume:	2.0 – 14.5 l
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
/iscosity range:	10 – 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Convection or air cooling
Weight:	from 12 to 20 kg
Return flow rate:	up to max. 40 I/min
nstallation position:	Vertical, horizontal
Further details can be found in Brochu	re in preparation



Up to 250 barUp to 30 l/minShort-time dutyS2 = 10 min*Intermittent dutyS3 = 30%*Continuous-operationperiodic dutyS6 = 30 %*

HYDAC Compact Power Units with AC or 3-Phase Motor CO3

- Actuation of consumers made flexible by optional combination of double pump (energy efficiency)
- Robust aluminium oil tank with volume of 20 to 70 litres
- Low-noise motor
- High duty cycle possible



Flow rate:	1.3 to 30 l/min
Operating pressure:	max. 250 bar
Duty cycle:	S2 (short-time duty)
- BI	S3 (intermittent duty)
	S6 (continuous-operation periodic duty)
Motor	0.55 to 5.5 kW
Motor voltages:	3 Ph. 230/400V -50 Hz (others on request)
Protection class:	DIN EN 60034-5 min IP 54
Pump parameters:	1.0 – 10.0 cm ³ (up to 32 ccm ³ on request)
	Double pump also possible
Tank volume:	20, 30, 44 & 70
Useable volume:	17, 25, 36 & 58
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 + Part 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Air or water cooler
Weight:	from 17 to 70 kg
Return flow rate:	up to max. 60 I/min
Installation position:	Vertical, horizontal

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Up to 250 bar Up to 12.6 l/min Short-time duty Intermittent duty

<mark>S2 = 3 min*</mark> S3 = 10%*

HYDAC Compact Power Units with Oil-Immersed Motor/Pump Unit CA

- Very compact and low-noise as motor-pump unit is oil-immersed in the tank
- High leakage resistance and stability due to deep-drawn steel tank
- Space-saving design due to small flange
- Standard terminal board on the front face simplifies electrical installation
- High performance compact units



SPECIFICATIONS	
Flow rate:	1.3 to 12.6 l/min
Operating pressure:	max. 250 bar
Duty cycle:	S2 (short-time duty)
	S3 (intermittent duty)
Motor:	Pn = 0.55 kW 3.0 kW
Motor voltages:	3 Ph. 230/400V -50 Hz (others on request)
Protection class:	DIN EN 60034-5 min IP 54
Pump displacement:	1.0 cm ³ /rev 4.75 cm ³ /rev
Tank volume:	5.0 - 9.0
Useable volume:	2.5 – 7.3
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Convection cooling
Weight:	from 12 to 24 kg
Return flow rate:	up to max. 25 l/min
Installation position:	Vertical, horizontal
Further details can be found in Brochu	Ire No. 5.305.3



Up to 500 bar Up to 5.25 l/min Short-time duty Intermittent duty

S2 = 3 min* S3 = 10%*

HYDAC Compact Power Units High Pressure Power Unit with 3-Phase Motor HP

- High power density and simultaneously compact construction
- Position of terminal box in the top of the unit simplifies electrical installation
- Radial piston pump is oil-immersed in the sturdy tank
- Very low noise emissions due to noise-damping cast-iron housing
- Wide range of build-on controls available



Flow rate:	0.3 to 5.25 l/min
Operating pressure:	max. 500 bar
Duty cycle:	S2 (short-time duty) S3 (intermittent duty)
Motor:	Pn = 1.2 kW 2.2 kW
Voltages:	3 Ph. 230/400V -50 Hz (others on request)
Protection class:	DIN EN 60034-5 min IP 54
Pump displacement:	0.3 cm ³ /rev 5.25 cm ³ /rev
Tank volume:	1.1 - 7.0
Useable volume:	0.7 – 5.8
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Cooling:	Convection cooling / air cooling
Weight:	from 7.2 to 25.7 kg
Return flow rate:	up to max. 10 l/min
Installation position:	vertical

INTERNATIONAL



Up to 500 bar Up to 12 l/min

HYDAC Valve Stacking System L

- Individually extendable stacking system for controlling low-volume consumers and pressure/load-holding tasks.
- A high level of flexibility for both designers and builders
- Small dimensions combined with high power density •
- No leakage thanks to short, robust connections
- Valve stack can be extended by retrofitting with additional modules



SPECIFICATIONS	
Flow rate:	up to 12 I/min
Operating pressure:	max. 500 bar
Voltages:	24 and 230 volts
Protection class:	DIN EN 60034-5 min IP 65
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm ² /s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Weight:	from 0.2 to 2.2 kg per individual module
Return flow rate:	up to max. 15 l/min
Can be flange-mounted to:	CO1, DC1, CA and HP power units
Further details can be found in Broch	Ire No. 5 304 2



Up to 350 bar Up to 20 I/min

HYDAC Valve Stacking System ML

GENERAL

- Individually extendable stacking system with integrated installation and sealing elements.
- A high level of flexibility for both designers and builders
- Small dimensions combined with high power density
- No leakage thanks to short, robust connections
- Valve stack can be extended by retrofitting with additional modules



SPECIFICATIONS	
Flow rate:	12 to 20 I/min
Operating pressure:	max. 350 bar
Voltages:	24 and 230 volts
Protection class:	DIN EN 60034-5 min IP 65
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 and 2
Temperature range of operating fluid:	-20°C to max. +80°C
Ambient temperature range:	-20°C to max. +40°C
Viscosity range:	10 – 380 mm²/s is recommended
Filtration:	Class 21/19/16 to ISO 4406 or cleaner
Weight:	from 0.5 to 6.4 kg per individual module
Return flow rate:	up to max. 20 I/min
Can be flange-mounted to:	CO1, DC1, CA and HP power units
Further details and be found in Decale.	

Further details can be found in Brochure No. 5.308.

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Information on Intermittent Duty



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- No leakage thanks to short, robust connections
- Can be extended by retrofitting with additional modules
- With S1, thermal equilibrium is reached: thermal energy supplied = thermal energy dissipated, and in this connection the maximum temperature is 80° C
- Compact power units <u>cannot</u> be operated continuously

SHORT-TIME DUTY (duty type S2)

- With S2, the operation time on load is not sufficient to reach thermal equilibrium
- Compact power units are designed for short-time operation S2

INTERMITTENT PERIODIC DUTY (duty type S3)

- The cycle time (T b + T st) is so short that thermal equilibrium is not reached
- The cycle time must not exceed 10 minutes
- Compact power units are designed for intermittent periodic operation S3

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Information on Intermittent Duty



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CONTINUOUS-OPERATION PERIODIC DUTY (duty type S6)

- The cycle time time with constant load and a rest period (tB + t L) is so short that thermal equilibrium is not reached
- The cycle time must not exceed 10 minutes
- Some Compact power units are designed for continuous-operation periodic duty S6

CALCULATING A COMPACT POWER UNIT

Calculation example:
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The relative duty cycle tr is calculated as follows:

$$T_{R} = \frac{T_{B}}{T_{B} + T_{L}} \times 100\%$$
$$-T_{B} = 20 \text{ sec}$$
$$-T_{L} = 80 \text{ sec}$$
$$T_{L} = 80 \text{ sec}$$

 $T_R = \frac{20}{20 + 80} \times 100 \% = 20 \%$