



# NSPi-SERIES

## HYDRAULIC UNIT



CELEBRATE THE POLE POSITION



Energy-efficient  
with 69%  
energy savings

## Compact

### Same size even with inverter drive

If you are using an NSP unit now, a replacement with NSPi without redesigning your machine is possible because it is almost the same size as the NSP unit. Replacing to an inverter driven NSPi unit means even greater energy savings.

- ▶ Replacement without machine modification is possible

#### BUILT-IN INVERTER VERSIONS

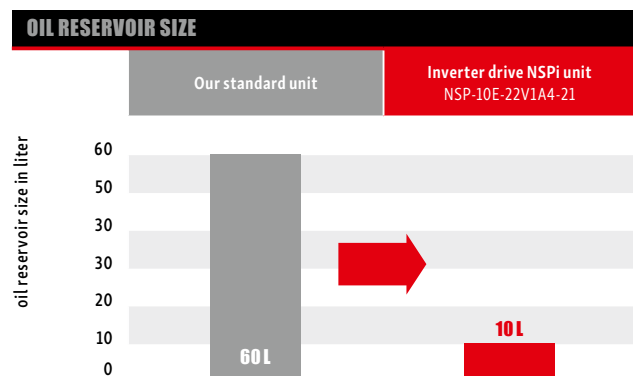
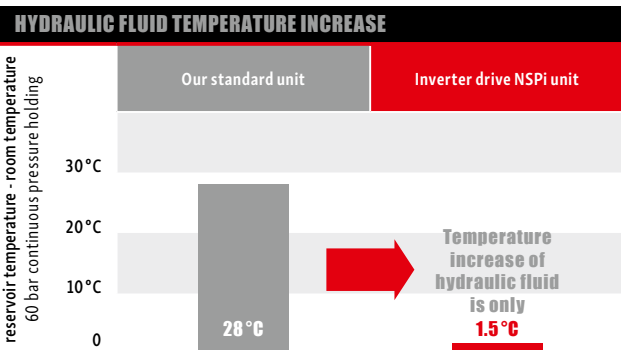


## Decrease the oil temperature rise

### 1.5°C increase in ambient temperature

The NSPi series benefits your entire system by lowering oil temperature to improve machining accuracy, lengthen the life of seals and hydraulic fluid and reduce factory air conditioning costs.

- ▶ Improve machining accuracy
- ▶ Longer life on seals and fluid oil
- ▶ Reduce maintenance cost
- ▶ Reduces the amount of oil required in the oil reservoir by the factor 6
- ▶ Saving costs by refusing additional oil cooler



# NSPi-SERIES

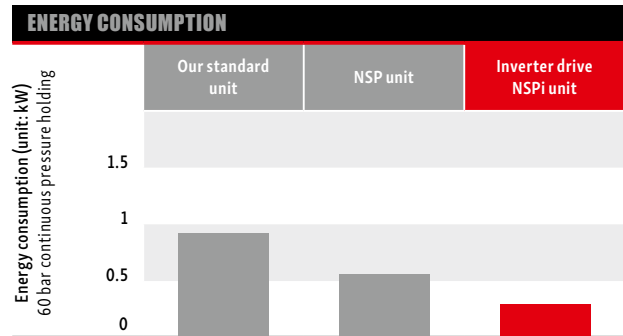
## CONFORM TO PREMIUM EFFICIENCY – IE3

### Energy savings

#### Energy consumption reduced by 69%

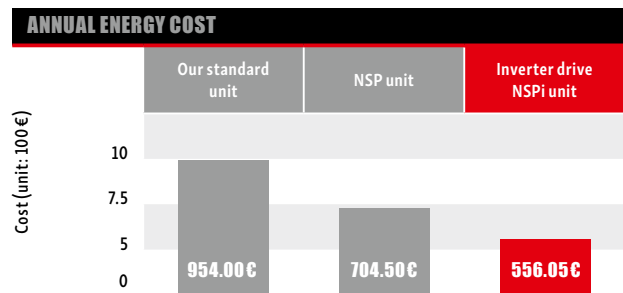
(compared to our standard unit during pressure holding mode)

The basic NSP unit consumes about 46% less energy than our standard unit. By adding the inverter drive and an IE3 efficient e-motor the NSPi achieves energy savings of up to 69% compared to our standard unit.



#### Energy costs reduced by 42%

Compared to our standard unit, the NSP unit cuts about 25% from energy bills and the inverter drive NSPi unit saves 42%.



#### Reduces annual CO<sub>2</sub> emissions by two tons

The inverter drive NSPi unit saves about 42% CO<sub>2</sub> emissions in comparison to our standard unit.

- ▶ Equivalent to two hectares of forest.

#### METHOD FOR CALCULATING ENERGY COSTS AND CO<sub>2</sub> EMISSIONS

Yearly operating time	8000 hours
Pressure holding	17 hours/day
Discharging	5 hours/day
Energy unit cost	0.12 €/kWh
CO <sub>2</sub> emissions factor*	0.555 kgCO <sub>2</sub> /kWh

\*CO<sub>2</sub> emissions factor: Default value set by Ministry of Economy Trade and Industry & Ministry of the Environment Ordinance Number 3, 2006.

### Low noise level

#### Excellent 53dB (A)

During pressure holding the noise level is as quiet as in a relaxing coffee shop. The inverter drive saves energy and increases comfort at the same time.

(60 bar continuous pressure holding - NSP-10E-22V1A4-21)



**Just replace your conventional hydraulic unit with our NSPi and save energy.**

# Easy operation and reliable performance

## Immediate start just by turning on the power

The inverter drive NSPi unit can be started easily just by turning on the power. Just push a single button to operate at maximum energy savings after the pressure is adjusted.



**PRODUCTION LINES KEEP RUNNING**

Production lines continue running even if there is trouble with the inverter because it is based on our reliable NSP unit and keeps running as a regular NSP unit.

Production line does not stop even despite total failure of the frequency converter because all you have to do is connect the motor to an electric power supply to start operating again.

Pay attention to hydraulic fluid temperature increase in the oil reservoir in case of switched-off inverter operation. In case of direct connection to the electric motor, check the range of rated voltage.

NSP - □□ E - □□ □ V □ A □ - □ - 21

### Explanation of Model Code

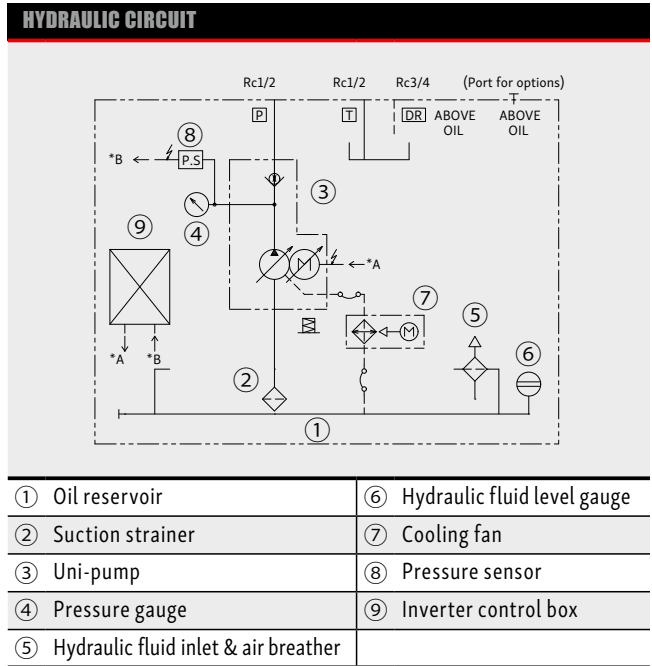
Design number		
Options	G: Fluid level gauge guard H: Temperature switch *1 J: Resin reservoir (10L only) M: Magnet separator *2 S: Float switch *1*2	T: Temperature gauge (with fluid level gauge) X1: Cooling fan= 1Phase AC 230V-50/60Hz *3
Pressure adjustment range:	A2: 15 ~ 40 bar A3: 35 ~ 60 bar	A4: 55 ~ 80 bar
Output flow (at no load):	0: 14L/min (1.5kW only)	1: 28L/min
Motor power supply:	No sign: 200V	4: 400V
Electric motor capacity:	15: 1.5kW	22: 2.2kW
E: Inverter drive		
Oil reservoir size	10: 10L	20: 20L

\*1 Both S and H cannot be installed. | \*2 Never equip M and S at the same time.

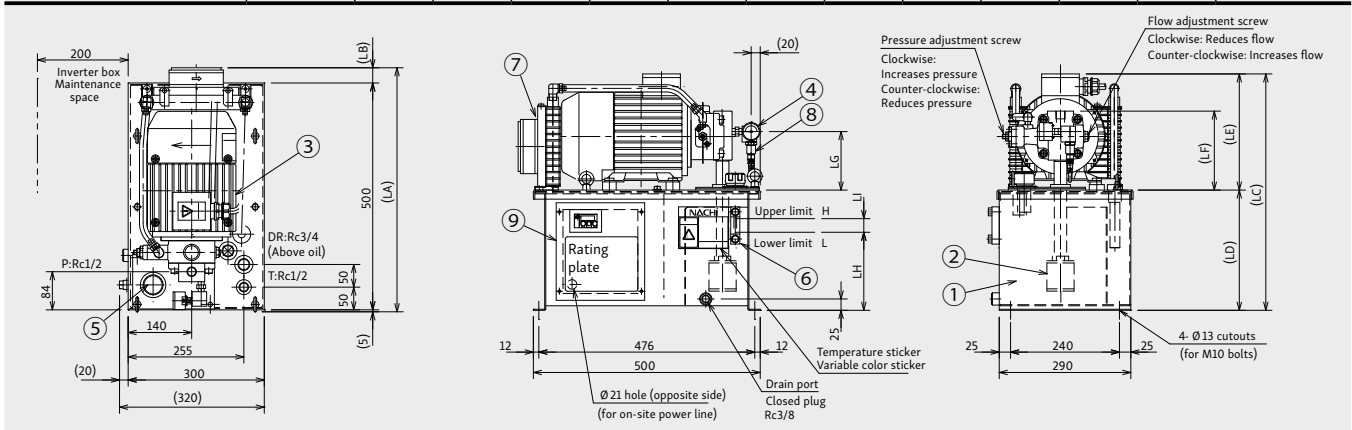
\*3 In case of option "X1", wiring for cooling fan is required separately. Please contact us in case of another application on voltage particularly.

SPECIFICATIONS	
<b>Power supply</b>	200V: 3Phase AC200~240V, 50/60Hz 400V: 3Phase AC380~480V, 50/60Hz
<b>Rated input current</b>	200V: 9.7A/1.5kW, 13.4A/2.2kW 400V: 5.9A/1.5kW, 8.2A/2.2kW Not including the inlet current for fan cooler.
<b>Pressure range</b>	A2: 15 ~ 40 bar A3: 35 ~ 60 bar A4: 55 ~ 80 bar
<b>Output flow (at no load)</b>	OA□: 14L/min 1A□: 28L/min
<b>Hydraulic fluid</b>	Standard mineral-based hydraulic fluid (equivalent to ISO VG 32)
<b>Hydraulic fluid temperature</b>	Use at temperatures below 60°C.
<b>Color of paint</b>	Munsell No. N1 (semigloss), JPMa No. AN-10 equivalent
<b>Ambient temperature/humidity</b>	0 to 35°C/20 to 85% RH (no condensation) (Keep the unit away from water-soluble cutting fluid mist.)

Enter "X1" in the optional code section if AC230V is used as the power source. Then AC230V type fan cooler is applied.



INSTALLATION DIMENSIONS													
Model	Motor (kW-P)	Size (mm)											Estimated weight (kg)
		LA	LB	LC	LD	LE	LF	LG	LH	LI	H	L	
NSP-10E-15V□A□-21	1.5-4	510	5	501	265	236	164	119	172	30	10L	8.5L	46
NSP-10E-22V1A□-21	2.2-4	540	35	521		256	174	129					51
NSP-20E-15V1A□-21	1.5-4	510	5	601	365	236	164	119	252	50	20L	16L	49
NSP-20E-22V1A□-21	2.2-4	540	35	621		256	174	129					54



Weight estimate does not include hydraulic fluid



## Precautions

- ▶ Turning the inverter on and off by cutting the main power supply (circuit breaker) significantly reduces the lifespan of the inverter and should be limited to once an hour or less. Contact us if you need to start and stop operations frequently.
- ▶ On changing the parameter for the inverter, only use parameters shown in the instruction manual. Otherwise, it may not work normally.
- ▶ Use a 13mm diameter two-meter long flexible hose rated for maximum 140bar to connect the hydraulic unit's P port (discharge port) and the external manifold (or actuator).
- ▶ Maximum peak pressure (set pressure + surge pressure) must be within 140bar. Install a relief valve on the hydraulic circuit side to cut surges if peak pressure is higher than 140bar.
- ▶ The Volume of leakage on external hydraulic circuits must be less than 1L/min. Consult us if leakage on the external hydraulic circuit is greater than 1L/min.
- ▶ The volume of hydraulic fluid in the oil reservoir must stay within the range visible on the fluid level gage (10L: approximately 1.5L, 20L: approximately 4L).

# NACHI

NACHI EUROPE GmbH

OUR SYNERGY  
YOUR PERFORMANCE



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