NSPi-SERIES
HYDRAULIC UNIT

CELEBRATE THE POLE POSITION

TOP ECO LEADER
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

**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 CO₂ emissions by two tons

The inverter drive NSPi unit saves about 42% CO₂ emissions in comparison to our standard unit.

▶ Equivalent to two hectares of forest.

Low noise level

Excellent 53 dB (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.

Explanation of Model Code

- NSP - [□□□□] E - [□□□□] V - [□□□□] A - [□□□□] - [21]

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

Pressure adjustment range:
- A2: 15~40 bar
- A3: 35~60 bar

Output flow (at no load):
- 0: 14 L/min (1.5 kW only)
- 1: 28 L/min

Motor power supply:
- No sign: 200 V
- 4: 400 V

Electric motor capacity:
- 15: 1.5 kW
- 22: 2.2 kW

E: Inverter drive

Oil reservoir size:
- 10: 10 L
- 20: 20 L

T: Temperature gauge (with fluid level gauge)
X1: Cooling fan= 1Phase AC 230V-50/60Hz *3

* Both S and H cannot be installed.
* *1 Never equip M and S at the same time.
* *2 In case of option "X1", wiring for cooling fan is required separately. Please contact us in case of another application on voltage particularly.
**SPECIFICATIONS**

**Power supply**
- 200V: 3Phase AC200–240V, 50/60Hz
- 400V: 3Phase AC380–480V, 50/60Hz

**Rated input current**
- 200V: 9.7 A / 1.5 kW, 13.4 A / 2.2 kW
- 400V: 5.9 A / 1.5 kW, 8.2 A / 2.2 kW

Not including the inlet current for fan cooler.

**Pressure range**
- A2: 15 ~ 40 bar
- A3: 35 ~ 60 bar
- A4: 55 ~ 80 bar

**Output flow (at no load)**
- OA: 14 L/min
- 1A: 28 L/min

**Hydraulic fluid**
- Standard mineral-based hydraulic fluid (equivalent to ISO VG 32)

**Hydraulic fluid temperature**
- Use at temperatures below 60°C.

**Color of paint**
- Munsell No. N1 (semigloss), JPMA No. AN-10 equivalent

**Ambient temperature/humidity**
- 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**

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor (kW-P)</th>
<th>Size (mm)</th>
<th>Estimated weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LA</td>
<td>LB</td>
<td>LC</td>
</tr>
<tr>
<td>NSP-10E-15V[A]</td>
<td>1.5</td>
<td>4</td>
<td>510</td>
</tr>
<tr>
<td>NSP-10E-22V[A]</td>
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</table>

**HYDRAULIC CIRCUIT**

- Oil reservoir
- ① Oil reservoir
- ② Suction strainer
- ③ Uni-pump
- ④ Pressure gauge
- ⑤ Hydraulic fluid inlet & air breather
- ⑥ Hydraulic fluid level gauge
- ⑦ Cooling fan
- ⑧ Pressure sensor
- ⑨ Inverter control box

**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 140 bar 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 140 bar. Install a relief valve on the hydraulic circuit side to cut surges if peak pressure is higher than 140 bar.
- 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 (30L: approximately 1.5L, 20L: approximately 4L).