



STANDARD HYDRAULIC POWER UNITS

NV - VERTICAL STYLE POWER UNIT

NH - HORIZONTAL STYLE POWER UNIT

NSP STYLE POWER UNIT



NACHI AMERICA INC.



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NACHI Standard Vertical Hydraulic Power Unit

NACHI Standard Vertical Hydraulic Power Units offer standard systems complete with:

- Reservoir, Pump, Pump Motor Adaptor, Electric Motor, Flexible Coupling, Pressure Control Relief Valve for Gear Pumps.
- Remote Compensator for Pressure Compensated Piston or Vane pumps.
- Pressure Gauge w/Shut Off, Air Breather/Filter Combination, Sight Gauge w/Thermometer, Drain Plug, Pressure and Return Connections, Suction Strainer w/3PSI By-Pass (except on 5 gallon) and check valve.

OPTIONAL ACCESSORIES INCLUDE:

Aluminum parallel directional control manifolds with cartridge relief valve in "D03" and "D05" sizes with AC or DC voltage.

Return Line Filter w/Dirt Indicator. Pressure blocks with #8SAE & 12SAE connection with relief or compensator control.

Pressure and flow control modular valves in "D03" and "D05" sizes.

Air/Oil cooler for case drain cooling of compensated pumps.

NOISE LEVELS:

Noise levels are well below the 90db (a) specified under the WALSH-HEALY ACT.

STANDARD UNITS:

Standard units can be ordered using the simple model codes. Optional selections can be obtained with the same codes (see "How To Order", page 8). Custom units can be manufactured using standard unit components.

CAPACITIES:

Reservoir capacities available from 5 gallon to 30 gallons (specials upon request). Reservoir capacities vs. pump flow can vary depending on specific applications. Generally a 2:1 reservoir to pump ratio is acceptable. Pressures at specific pump flow will determine the hydraulic horsepower required. Refer to "TABLE A", page 6.

QUALITY:

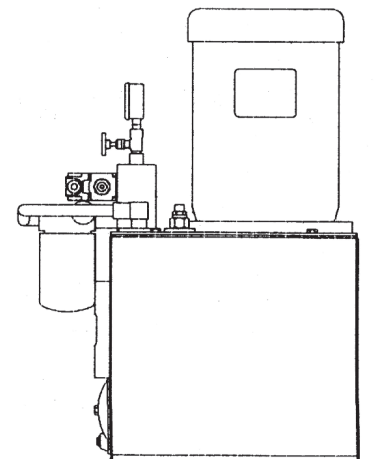
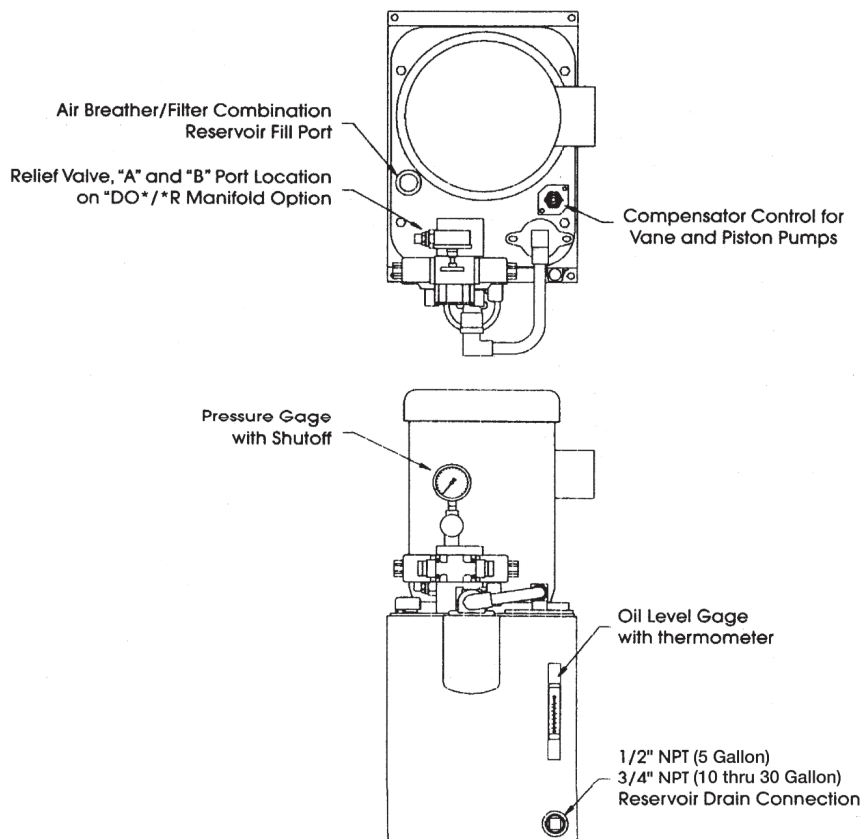
Quality components and high manufacturing standards make these factory assembled units fit virtually any application. The wide variety of pumps, motors, reservoirs, manifolds and choice of options enable you to match your application requirements for optimum productivity and Cost-Effective operation.

RELIABILITY:

Strict control of accepted hydraulic assembly practices, testing procedures, plus high quality components assure successful operation in a variety of industrial applications.

LOW COST:

Production line assembling, combined with minimal piping offers compact systems at low cost.



Operating Instructions

Fill reservoir with new premium grade hydraulic fluid (Mobil DTE26 or equal). It is highly recommended to filter all hydraulic fluid before filling the reservoir. Fluid level gauge will indicate proper level. Electric motor wiring must conform to the motor wiring nameplate. Jog motor to check proper rotation, indicated by the rotation arrow on the unit. Incorrect rotation can be reversed by interchanging any two lines on a three phase motor.

Relief or compensator control valve should be set at lowest pressure setting for startup. Decrease pressure by turning the adjusting screw counterclockwise. If pump does not prime, vent pump pressure line to atmosphere and into an open container to establish flow. After pump has primed, reconnect pressure line and run at lowest pressure setting to purge air from the system piping. Recheck the fluid level in the reservoir, as some fluid could be lost in the filling of piping and components.

Most foreign material and contaminants will be trapped by the return line filter after a few hours of operation. The return line filter element should be replaced when gauge indicates. (See pg. 8 for spare element numbers). Most industrial applications should operate at a temperature below 140 degrees fahrenheit. At higher temperatures, problems are often experienced in maintaining reliable and consistent hydraulic control. Component service life is also reduced and hydraulic oil deteriorates. If the system tends to operate at an elevated temperature level, steps must be taken to reduce this elevated operating temperature.

Once a year or every 4000 hours of operation, the reservoir's air breather filter and the suction strainer should be replaced. The reservoir oil should be drained, and the reservoir cleaned. Dusty or contaminated environments may require more frequent cleaning and maintenance.

Pressures shown will load AC electric motors to their nameplate horsepower rating. Pressures shown should not be exceeded when system must be started at full pressure. Momentary pressures higher than those listed can be applied if sufficient operating time at lower pump pressure or lower motor load during the cycle will provide for motor cooling. Dead head pressure loading would require full motor HP using a constant displacement gear pump. Dead head pressure with a pressure compensated Piston or Vane pump would require a small percentage of the full flow loading, consequently generating less heat. Actual HP requirements depend on the duty cycle and operating conditions. This is many times best determined by actual testing by the customer.

The components and piping are designed for the use of petroleum base fluids.

THEORETICAL PRESSURE TABLE (PSI)

Table "A"

| GPM | HORSEPOWER REQUIREMENTS ▲ | | | | | | | | |
|---------------------|---------------------------|------|------|------|------|------|------|------|----|
| | 1 | 1.5 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| GEAR PUMPS | | | | | | | | | |
| 1.6 | 1071 | 1607 | 2143 | * | | | | | |
| 2.4 | 714 | 1071 | 1428 | 2143 | * | | | | |
| 3.0 | 571 | 857 | 1143 | 1714 | 2857 | * | | | |
| 5.2 | | 494 | 659 | 989 | 1648 | 2472 | * | | |
| 7.0 | | 367 | 490 | 735 | 1224 | 1836 | 2449 | * | |
| 9.0 | | | 381 | 571 | 952 | 1428 | 1904 | 2857 | * |
| 10.4 | | | | 494 | 824 | 1236 | 1648 | 2472 | * |
| 12.3 | | | | 418 | 697 | 1045 | 1393 | 2090 | * |
| PISTON PUMPS | | | | | | | | | |
| 3.8 | 451 | 677 | 902 | 1353 | 2255 | * | | | |
| 7.8 | 220 | 330 | 439 | 659 | 1099 | 1648 | 2197 | * | |
| 10.5 | 163 | 245 | 326 | 490 | 816 | 1224 | 1632 | * | |
| VANE PUMPS | | | | | | | | | |
| 7.9 | | 325 | 434 | 651 | 1085 | 1627 | * | | |
| 10.5 | | 245 | 325 | 490 | 816 | * | | | |
| 14.2 | | | 241 | 362 | 604 | 905 | 1207 | 1811 | * |

Table "B"

| ORDERING CODE | THEORETICAL FLOW (GPM) | DISPLACEMENT CU IN/REV |
|---------------------|------------------------|------------------------|
| GEAR PUMPS | | |
| G/1.6 | 1.63 | 0.21 |
| G/2.4 | 2.41 | 0.31 |
| G/3.0 | 3.03 | 0.39 |
| G/5.2 | 5.22 | 0.67 |
| G/7.0 | 7.09 | 0.91 |
| G/9.0 | 9.03 | 1.16 |
| G/10.4 | 10.44 | 1.34 |
| G/12.3 | 12.38 | 1.59 |
| PISTON PUMPS | | |
| P/3.8 | 3.80 | 0.49 |
| P/7.8 | 7.80 | 1.01 |
| P/10.5 | 10.50 | 1.34 |
| VANE PUMPS | | |
| V/7.9 | 7.90 | 1.02 |
| V/10.5 | 10.50 | 1.34 |
| V/14.2 | 14.20 | 1.83 |

▲ 5 Horsepower and larger can only be used on 10 gallon and larger reservoirs.

* Using this horsepower could cause pump to exceed maximum rated pressure

Reservoir Code

How to Order

NV20 - 5 - G/5.2 - P1~3 - N - IL

RESERVOIRS

NV5 - 5 Gallon
NV10 - 10 Gallon
NV20 - 20 Gallon
NV30 - 30 Gallon

MOTORS

1
1.5
2
3
5
7.5
10
15

PUMPS

G/1.6
G/2.4
G/3.0
G/5.2
G/7.0
G/9.0
G/10.4
G/12.3
P/3.8
P/7.8
P/10.5
V/7.9
V/10.5
V/14.2

PRESSURE RANGE

P1 1000 psi
P2 1000-2000 psi
P3 2000-3000 psi

RETURN FILTER

IL - Inline, Spin-on
(All size Reservoirs)
IT - Intank, Cover mounted
(10 gallon and larger)

NOTE:

Piston and Vane Pumps
must use 10 gallon or larger
reservoir

COOLER

AIR COOLED ATTACHED
TO TEFC MOTOR

C1 4 GPM (Drain)
C2 15 GPM Rear Mount
145TC MTR
C3 20 GPM Rear Mount
182-184TC MTR
C4 24 GPM Rear Mount
213-215TC MTR

Combination of reservoir and pumps are
generally a 2:1 reservoir to pump flow ratio.
Smaller pump and motor combinations
may be mounted on larger reservoirs.

MOTOR CODE: 5
Horsepower
(Ref. Table "A", pg. PU-6)

REPLACEMENT ITEMS:

| | |
|--------------------------|---------|
| FILTER ELEMENT (INLINE) | #72-001 |
| FILTER ELEMENT (INTANK) | #72-015 |
| AIR BREATHER FILTER | #42-001 |
| SUCTION STRAINER (5GPM) | #70-001 |
| SUCTION STRAINER (8GPM) | #70-002 |
| SUCTION STRAINER (10GPM) | #70-003 |
| SUCTION STRAINER (20GPM) | #70-004 |

MOTOR ENCLOSURE

Totally enclosed motors (TEFC) are intended for
use where moisture, dirt, and/or corrosive
materials are present in indoor or outdoor
locations.

MOTOR VOLTAGE

3 PHASE - 208-230/460V, 60HZ
(Special voltages upon request)

Manifold Code

How to Order:

STATION #1 STATION #2 STATION #3 STATION #4
D05/4R - 15 - N - C5/OG1 - C5 - A3X - C6 - C115

MANIFOLD

RELIEF VALVE PRESSURE
ADJUSTMENT RANGE

DIRECTIONAL AND
MODULAR VALVES

VOLTAGE

ALUMINUM MANIFOLD BLOCKS

D03/*R - D03 Directional valve manifold with relief valve. (*Number of valve stations required, 4 maximum. Consult factory if more stations are required.)

D05/*R - D05/(D02) Directional valve manifold with relief valve. (*Number of valve stations required, 4 maximum. Consult factory if more stations are required. 8 gallon and larger reservoir only)

PB3R - Pressure block (#8SAE pressure connection) with relief valve for gear pumps.

PB3C - Pressure block (#8SAE pressure connection) with compensator control for piston and vane pumps.

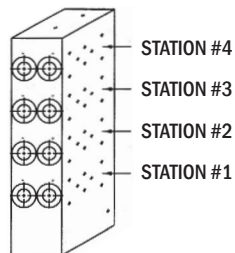
PB5R - Pressure block (#12SAE pressure connection) with relief valve for gear pumps. (8 gallons and larger reservoir only)

PB5C - Pressure block (#12SAE pressure connection) with compensator control for piston and vane pumps. (8 gallons and larger reservoir only)

N - NONE
 15 - 150 - 1500 PSI
 30 - 250 - 3000 PSI

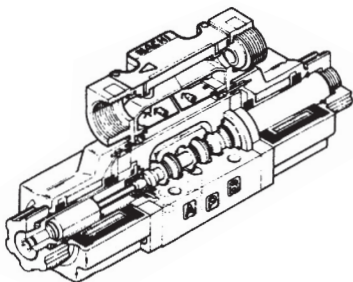
PUMP COMPENSATOR
CONTROL

STATION #1 IS CLOSEST TO
RESERVOIR ON A MULTIPLE
STATION MANIFOLD



▲ ADD "F" FOR OPTIONAL
HYDRAULIC SHOCKLESS
SOLENOID

■ "D03" SIZE ONLY



NOTE: "A" and "B" port connections on "D03" and "D05" manifolds are #8SAE (3/4 - 16 UNF).

Consult factory for additional configurations.

DIRECTIONAL VALVES

OMIT - NOT REQUIRED

A3Z ▲ - B

A3X ▲ - B

E3X ▲ - B

C4 ▲ - B

C5 ▲ - B

C6 ▲ - B

C7Y ▲ - B

SOLENOID VALVE VOLTAGE

OMIT - NOT REQUIRED

C115 - AC 115V 60HZ

C230 - AC 230V 60HZ

D1 - DC 12V

D2 - DC 24V

EASY WIRING:
 Directional control valves come standard with a large waterproof wiring box with terminal screws, solenoid indicator light(s) and (2) PF 1/2 conduit connections.

MODULAR VALVES

OG* - Reducing

OR* - Relief

OY - Flow Regulator

OC* - Check

OCP* - Pilot Check

OCY - Metered Out Flow Regulator

OCF - Flow Control with Metered Out Check

CRACKING PRESSURE

1: 29 PSI
 2: 71 PSI

CRACKING PRESSURE

1: 5.7 PSI
 2: 50 PSI
 3: 71 PSI

PRESSURE ADJUSTING RANGE

1: 0 - 1000 PSI
 3: 500 - 3000 PSI

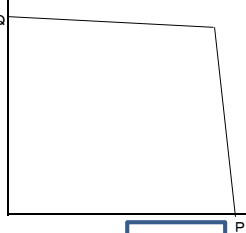
PRESSURE ADJUSTING RANGE

C: 21 - 500 PSI (D03 & D05 ONLY)
 1: 114 - 1000 PSI
 2: 500 - 2286 PSI

Unit Specification Work Sheet


| | |
|-------------------------------|----------------------|
| Customer _____ | Nachi W.O.# _____ |
| Customer PO# _____ | Date _____ |
| Number of Units Req'd _____ | Prepared By _____ |
| Requested Delivery Time _____ | WorkSheet.No. _____ |
| | Nachi Engineer _____ |

Reservoir Code Requirements

| | |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Required Tank Capacity _____ Gallons | Pump-Setting |
| System Flow Requirement _____ GPM | <div style="border: 1px solid black; padding: 2px;">GPM</div> Q |
| System Pressure Requirement _____ PSI |  |
| Pump style <input type="checkbox"/> Gear <input type="checkbox"/> Vane <input type="checkbox"/> Piston | |
| Horsepower Requirement $HP = \frac{GPM \times PSI}{1714 \times \text{Std Eff}(85\%)}$ _____ HP | <div style="border: 1px solid black; padding: 2px;">PSI</div> P |
| Cooler Required <input type="checkbox"/> Drain <input type="checkbox"/> Return | Pump Number [_____] |
| Return Filter Type <input type="checkbox"/> Inline <input type="checkbox"/> Intank <input type="checkbox"/> Special | Notes: _____ |
| Reservoir Code _____ | |

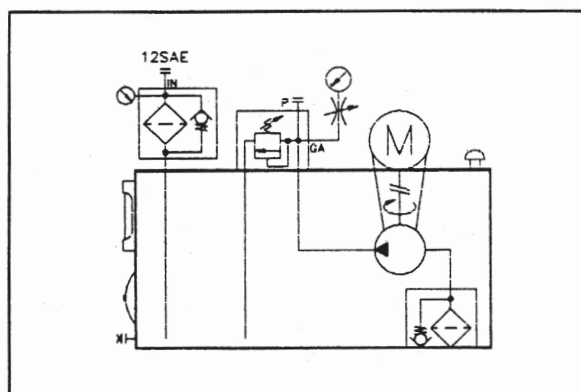
Manifold Code Requirements

| Manifold Size (Directional) <input type="checkbox"/> D03 <input type="checkbox"/> D05 <input type="checkbox"/> D08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|----------------------|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|
| Relief Valve pressure Range <input type="checkbox"/> 150 ~ 1500 psi <input type="checkbox"/> 250 ~ 3000psi <input type="checkbox"/> Not Required | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Directional & Modular Valves (If Required) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Station #</th> <th>Spool Type (Valve)</th> <th colspan="4">Modular Stack Valves</th> </tr> </thead> <tbody> <tr><td>#1</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>#2</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>#3</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>#4</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>#5</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> | Station # | Spool Type (Valve) | Modular Stack Valves | | | | #1 | | | | | | #2 | | | | | | #3 | | | | | | #4 | | | | | | #5 | | | | | |
| Station # | Spool Type (Valve) | Modular Stack Valves | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| #1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| #2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| #3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| #4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| #5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Station #1 will be closest to pressure inlet on a multiple station manifold. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Voltage Requirement <input type="checkbox"/> AC 115V / 60Hz <input type="checkbox"/> AC 230V / 60Hz <input type="checkbox"/> DC 12V <input type="checkbox"/> DC 24V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Manifold Code _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

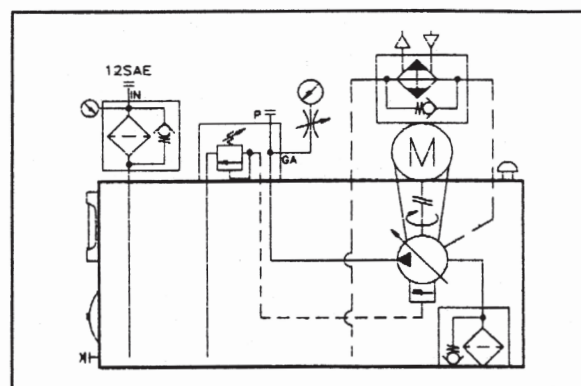
| | | | | | | | |
|----------------------|-------------------------------------------------------------------------------------|------------------------------------------|--|------------------------------------------|--|------------------------|--|
| Manufacturing Number |  | Approved By (with date) Nachi Manager | | Checked By (with date) Nachi Engineer | | Created By (with date) | |
| | | Date | | Date | | Date | |

Comments:

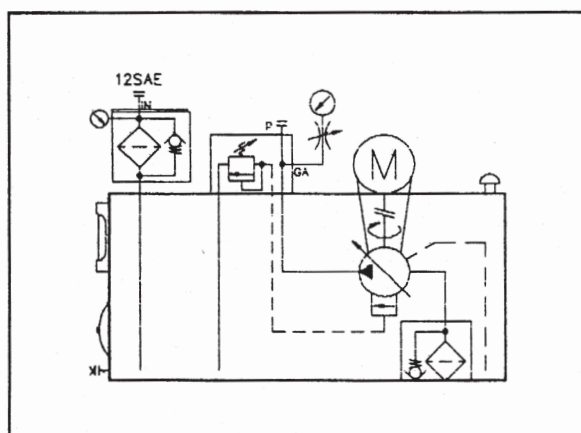
Hydraulic Schematics



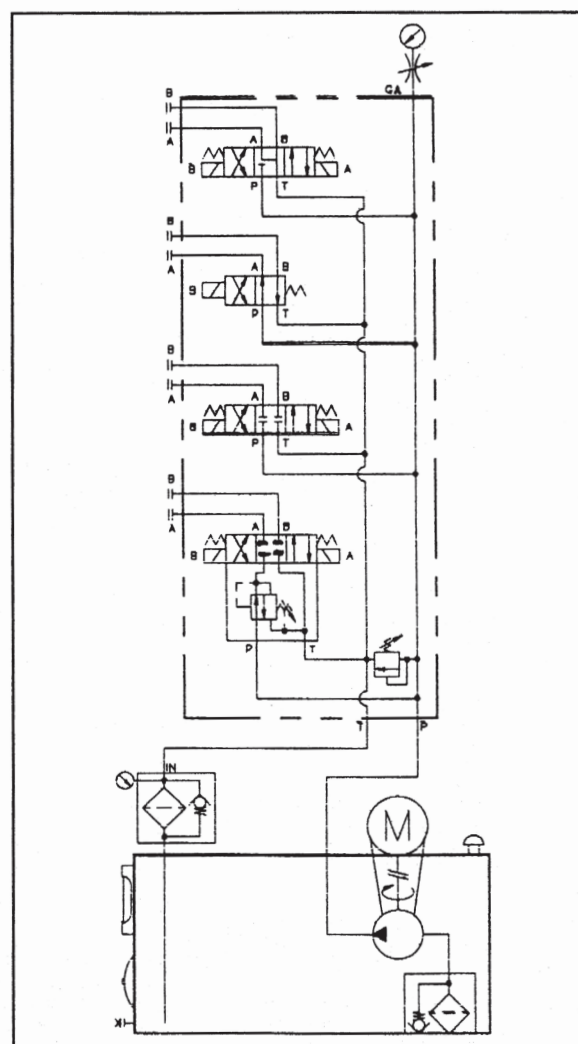
Gear Pump Unit
with Manifold Option "PB3R" (8SAE)
or "PB5R" (12SAE)



Piston/Vane Pump Unit
with Case Drain Air Cooler with By-Pass



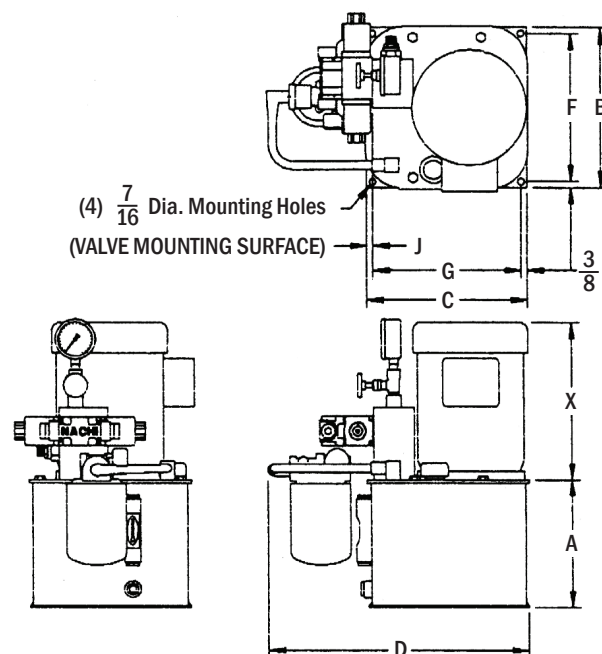
Piston/Vane Pump Unit
with Manifold Option "PB3C" (8SAE)
or "PB5C" (12SAE)



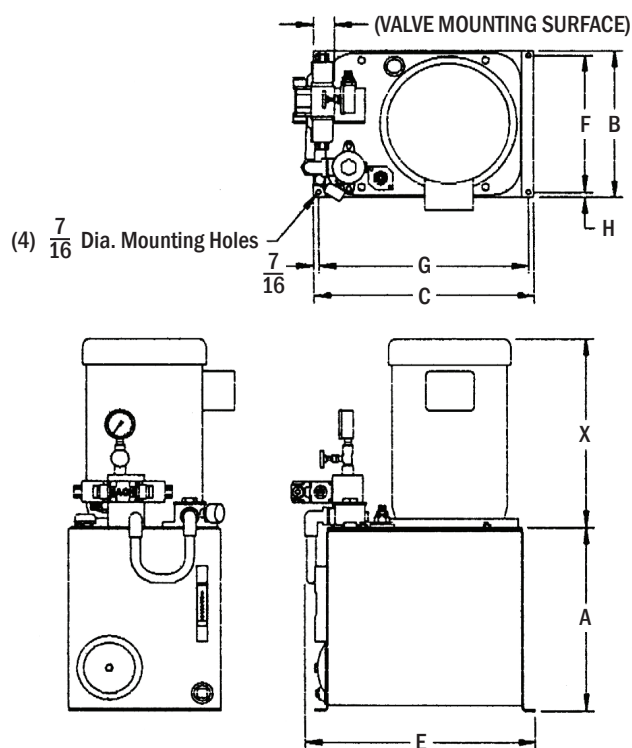
Schematic for "How to Order"
<Example Code>
(Reference page 6)

Standard Unit

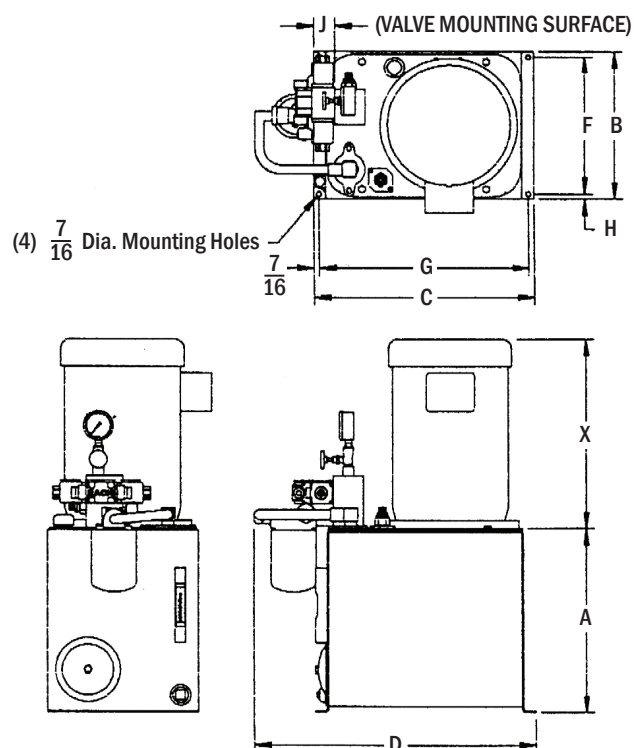
Measurements are approximate. Where dimensions are critical, obtain special quotation.



NV5 Gallon w/Inline Filter



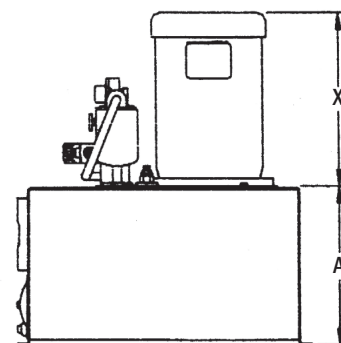
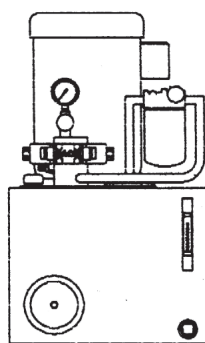
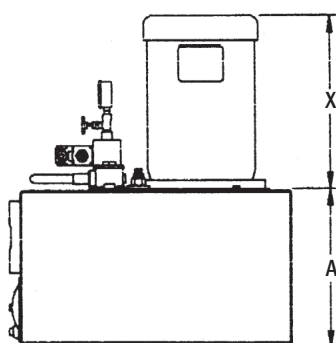
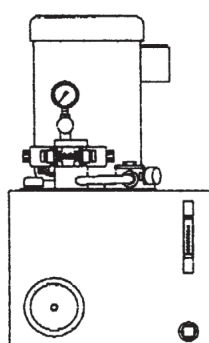
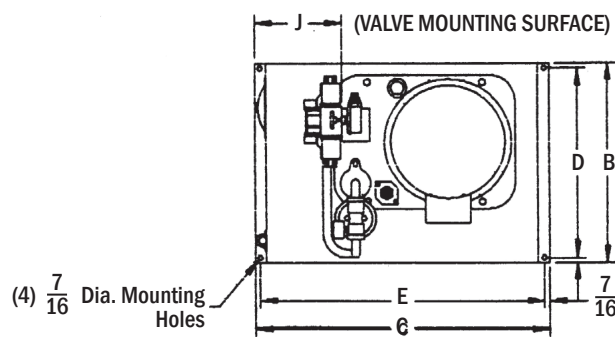
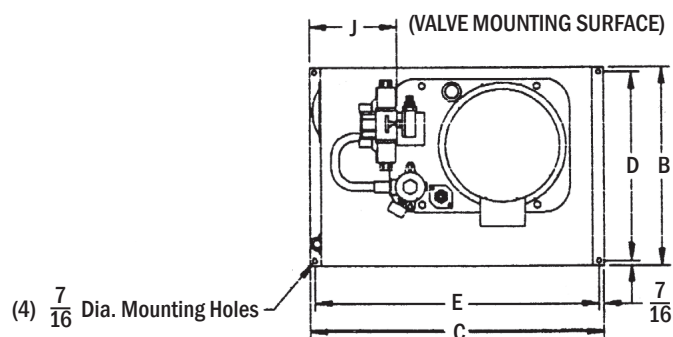
NV10 Gallon w/Intank Filter



NV10 Gallon w/Inline Filter

Standard Unit

Measurements are approximate. Where dimensions are critical, obtain special quotation.



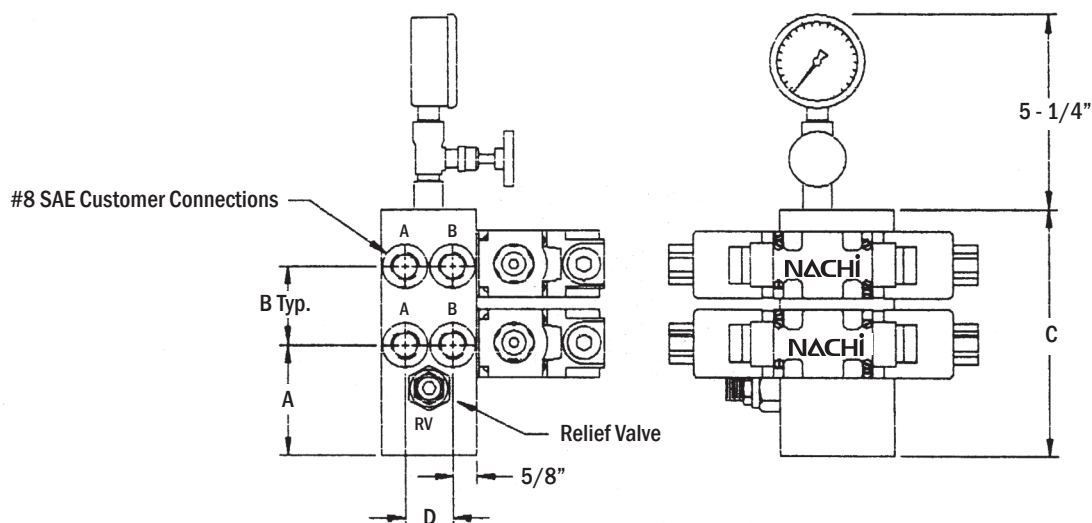
NV20 Thru NV30 Gallon w/Intank Filter

NV20 Thru NV30 Gallon w/Inline Filter

| RESERVOIR | UNIT DIMENSIONS (INCHES) | | | | | | | | |
|-----------|--------------------------|-------|-------|---|---|-----|-------|-------|-------|
| | A | B | C | D | E | F | G | H | J |
| NV5 | 10" | 12.5" | 14.5" | - | - | 10" | 13.5" | 1.25" | .05" |
| NV10 | 19.7" | 16.5" | 19" | - | - | 14" | 13.5" | 1.25" | .075" |
| NV20 | 23.7" | 16.5" | 19" | - | - | 14" | 17.5" | 1.25" | .075" |
| NV30 | 35.7" | 16.5" | 19" | - | - | 14" | 17.5" | 1.25" | .075" |

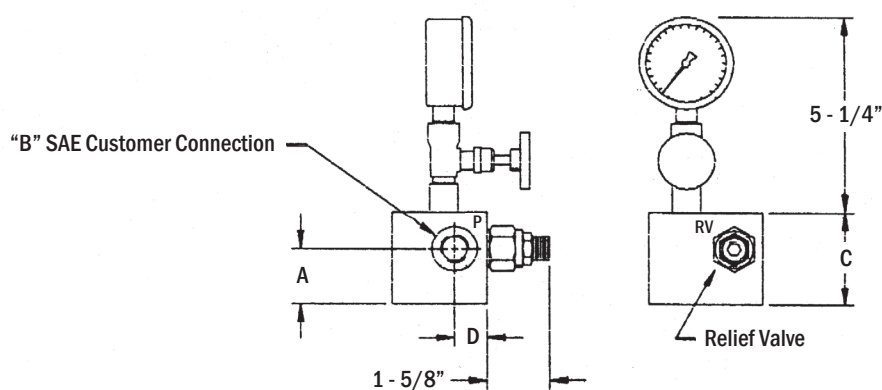
| HORSEPOWER | "X" (TEFC) |
|------------|------------|
| 1 | 10 5/8 |
| 1.5 | 10 5/8 |
| 2 | 11 5/8 |
| 3 | 12 1/4 |
| 5 | 14 1/2 |
| 7.5 | 16 1/4 |
| 10 | 18 1/8 |
| 15 | 20 3/8 |

Manifold Dimensions



Manifold Option "D03/2R" shown

| MANIFOLD OPTIONS | MANIFOLD DIMENSION (INCHES) | | | |
|------------------|-----------------------------|-------|-------|-------|
| | A | B | C | D |
| D03/1" | 1.06" | | 2.13" | 1.75" |
| D03/2" | 1.06" | 2.13" | 4.25" | 1.75" |
| D03/3" | 1.06" | 2.13" | 6.38" | 1.75" |
| D03/4" | 1.06" | 2.13" | 8.50" | 1.75" |
| D05/1" | 1.56" | 3.25" | 3.25" | 2.12" |
| D05/2" | 1.56" | 3.25" | 6.50" | 2.12" |
| D05/3" | 1.56" | 3.25" | 9.75" | 2.12" |
| D05/4" | 1.56" | 3.25" | 13.0" | 2.12" |

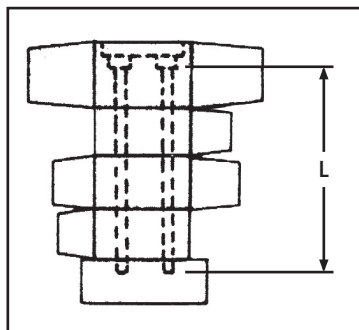


Manifold Option "PB3R" shown

| MANIFOLD OPTIONS | MANIFOLD DIMENSION (INCHES) | | | |
|------------------|-----------------------------|----|------|------|
| | A | B | C | D |
| PB3* | 1.50 | 8 | 2.50 | .84 |
| PB5* | 1.63 | 12 | 2.75 | 1.13 |

Optional Component Information

Bolt Kit Length



| Bolt Length for D03 |
|----------------------------------|
| Valve - 10 - 24 x 1 3/4 |
| Valve & module - 10 - 24 x 3 1/4 |
| Valve & 2 modules - 10 - 24 x 5 |

| Bolt Length for D05 |
|----------------------------------|
| Valve - 1/4 - 20 x 2 3/4 |
| Valve & module - 1/4 - 20 x 5 |
| Valve & 2 modules - 1/4 - 20 x 7 |

Note:

1. Bolt kits to be ordered separately when using modulators.
2. Bolt kits are furnished with directional valves when no modulators are required.
3. All "D03" modulators are 40mm thick.
4. "D05" modulators are 55mm thick.

NACHI Standard Horizontal Hydraulic Power Unit

NACHI standard horizontal hydraulic power units offer standard systems complete with:

Reservoir, Pump, Pump/Motor Adapter, Electric Motor, Motor Channel, Flexible Coupling, Pressure Control Relief Valve For Gear Pumps, Pressure Compensated Piston and Vane Pumps. Pressure gage W/ Shut off, Air Breather/Filler Combination, Sight Gage W/ Thermometer, Drain Plug, Pressure and Return Connections, Return Line Filter W/ By-pass and Dirt Indicator, Suction Strainer W/ 3 PSI By-pass.

OPTIONAL ACCESSORIES INCLUDE:

Aluminum parallel directional control manifolds with/without cartridge relief valve in "D03", "D05", Directional Control valves in AC or DC voltage. Pressure and flow control modular valves, air/oil case drain cooler, inline or intank mounted return filter, inline Nachi relief valve. compensated pumps.

NOISE LEVELS:

Noise levels are well below the 90db (a) specified under the WALSH-HEALY ACT.

STANDARD UNITS:

Standard units can be ordered using the simple model codes. Optional selections can be obtained with the same codes (see "How To Order", page 16). Custom units can be manufactured using standard unit components.

CAPACITIES:

Reservoir capacities available from 10 gallons to 40 gallons. Reservoir capacities vs. pump flow can vary depending on specific applications. Generally a 2:1 reservoir to pump ratio is acceptable. Pressures at specific pump flow will determine the hydraulic horsepower required. Refer to "TABLE A", page 13.

QUALITY:

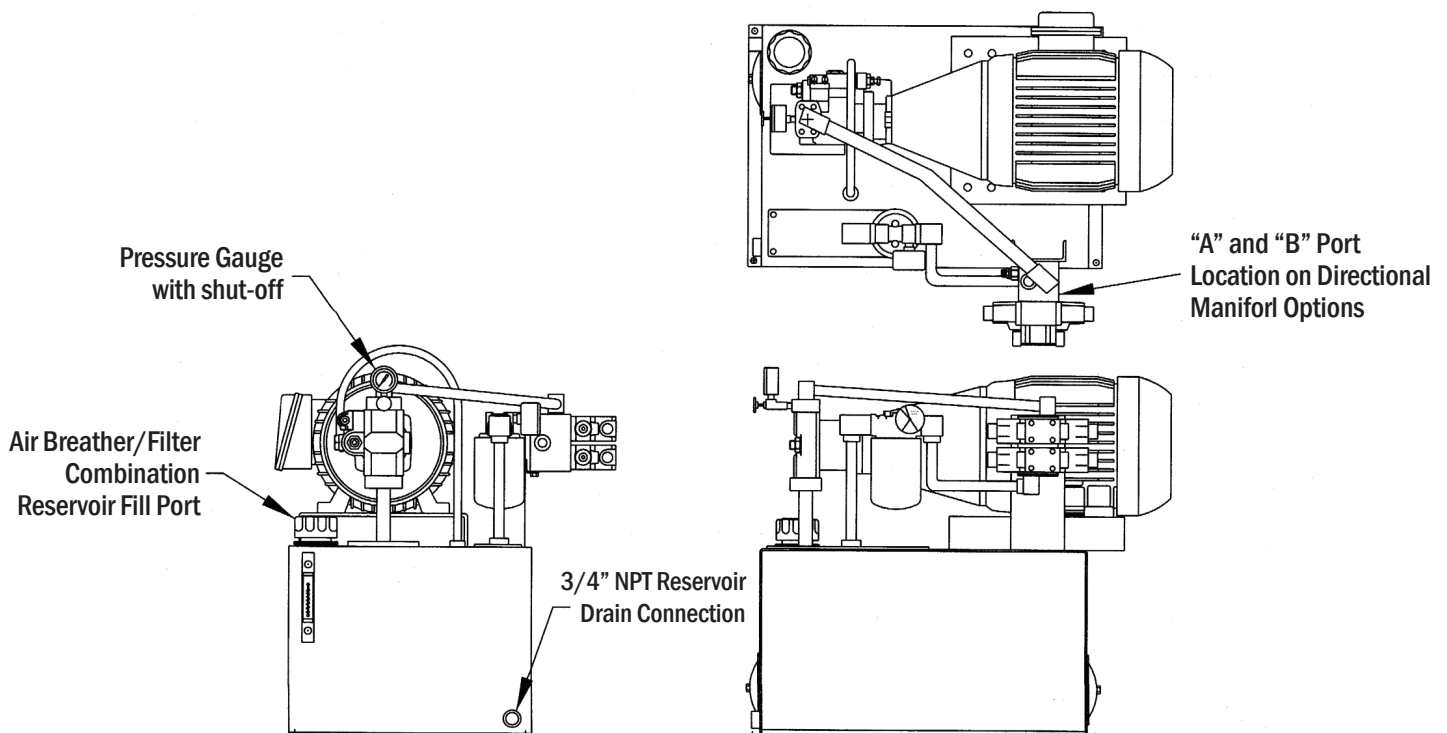
Quality components and high manufacturing standards from such companies as VESCOR, DAMAN, and others make these factory assembled units fit virtually any application. The wide variety of pumps, motors, reservoirs, manifolds, and choice of options enable you to match your application requirements for optimum productivity and cost-effective operation.

RELIABILITY:

Strict control of accepted hydraulic assembly practices, testing procedures, plus high quality components assure successful operation in a variety of industrial applications.

LOW COST:

Production line assembling, combined with minimal piping offers compact systems at low cost.



Operating Instructions

Fill reservoir with new premium grade hydraulic fluid (Mobil DTE26 or equal). It is highly recommended to filter all hydraulic fluid before filling the reservoir. Fluid level gauge will indicate proper level. Electric motor wiring must conform to the motor wiring nameplate. Jog motor to check proper rotation, indicated by the rotation arrow on the unit. Incorrect rotation can be reversed by interchanging any two lines on a three phase motor.

Relief or compensator control valve should be set at lowest pressure setting for startup. Decrease pressure by turning the adjusting screw counterclockwise. If pump does not prime, vent pump pressure line to atmosphere and into an open container to establish flow. After pump has primed, reconnect pressure line and run at lowest pressure setting to purge air from the system piping. Recheck the fluid level in the reservoir, as some fluid could be lost in the filling of piping and components.

Most foreign material and contaminants will be trapped by the return line filter after a few hours of operation. The return line filter element should be replaced when gauge indicates. (See pg. 8 for spare element numbers). Most industrial applications should operate at a temperature below 140 degrees fahrenheit. At higher temperatures, problems are often experienced in maintaining reliable and consistent hydraulic control. Component service life is also reduced and hydraulic oil deteriorates. If the system tends to operate at an elevated temperature level, steps must be taken to reduce this elevated operating temperature.

Once a year or every 4000 hours of operation, the reservoir's air breather filter and the suction strainer should be replaced. The reservoir oil should be drained, and the reservoir cleaned. Dusty or contaminated environments may require more frequent cleaning and maintenance.

Pressures shown will load AC electric motors to their nameplate horsepower rating. Pressures shown should not be exceeded when system must be started at full pressure. Momentary pressures higher than those listed can be applied if sufficient operating time at lower pump pressure or lower motor load during the cycle will provide for motor cooling. Dead head pressure loading would require full motor HP using a constant displacement gear pump. Dead head pressure with a pressure compensated Piston or Vane pump would require a small percentage of the full flow loading, consequently generating less heat. Actual HP requirements depend on the duty cycle and operating conditions. This is many times best determined by actual testing by the customer.

The components and piping are designed for the use of petroleum base fluids.

PRESSURE TABLE (PSI) AT 1800 RPM

Table "A"

| GPM | HORSEPOWER REQUIREMENTS | | | | | | |
|---------------------|-------------------------|------|------|------|------|------|------|
| | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| GEAR PUMPS | | | | | | | |
| 1.6 | 1821 | 2732 | * | | | | |
| 2.4 | 1214 | 1821 | * | | | | |
| 3.0 | 971 | 1457 | 2428 | * | | | |
| 5.2 | 560 | 841 | 1401 | 2101 | 2802 | | |
| 7.0 | 416 | 624 | 1041 | 2101 | 2802 | | |
| 9.0 | 325 | 486 | 809 | 1214 | 1619 | | |
| 10.4 | 280 | 420 | 700 | 1051 | 1401 | 2101 | 2802 |
| 12.3 | 237 | 355 | 592 | 88 | 1185 | 1777 | 2369 |
| PISTON PUMPS | | | | | | | |
| 3.8 | 767 | 1150 | 1917 | 2876 | * | | |
| 7.8 | 374 | 560 | 934 | 1401 | 1868 | * | * |
| 10.5 | n/a | 416 | 694 | 1041 | 1388 | 2081 | 2775 |
| 16.6 | n/a | n/a | 439 | 658 | 878 | 1317 | 1775 |
| 21.5 | n/a | n/a | 339 | 508 | 678 | 1017 | 1355 |
| VANE PUMPS | | | | | | | |
| 4.0 | 728 | * | | | | | |
| 7.9 | 369 | 553 | 992 | 1383 | 1844 | * | |
| 10.5 | 278 | 416 | 694 | * | | | |
| 14.2 | n/a | 309 | 513 | 770 | 1026 | 1539 | * |
| 7.9 | n/a | 238 | 396 | 594 | 792 | * | |

Table "B"

| ORDERING CODE | THEORETICAL FLOW (GPM) | DISPLACEMENT CU IN/REV |
|---------------------|------------------------|------------------------|
| GEAR PUMPS | | |
| G/1.6 | 1.63 | 0.21 |
| G/2.4 | 2.41 | 0.31 |
| G/3.0 | 3.03 | 0.39 |
| G/5.2 | 5.22 | 0.67 |
| G/7.0 | 7.09 | 0.91 |
| G/9.0 | 9.03 | 1.16 |
| G/10.4 | 10.44 | 1.34 |
| G/12.3 | 12.38 | 1.59 |
| PISTON PUMPS | | |
| P/3.8 | 3.80 | 0.49 |
| P/7.8 | 7.80 | 1.01 |
| P/10.5 | 10.50 | 1.34 |
| P/16.6 | 16.60 | 2.14 |
| P/21.5 | 21.50 | 6.10 |
| VANE PUMPS | | |
| V/4.0 | 4.00 | 0.51 |
| V/7.9 | 7.90 | 1.02 |
| V/10.5 | 10.50 | 1.34 |
| V/14.2 | 14.20 | 1.83 |
| V/18.4 | 18.40 | 2.38 |

* Using this horsepower could cause pump to exceed maximum rated pressure

Reservoir Code

How to Order

NH40 - 10 - P/10.5 - P1~P3 - N - IL40

RESERVOIRS

NH10 - 10 Gallon
NH20 - 20 Gallon
NH30 - 30 Gallon
NH40 - 40 Gallon

MOTORS

2
3
5
7.5
10
15
20

PUMPS

G/1.6
G/2.4
G/3.0
G/5.2
G/7.0
G/9.0
G/10.4
G/12.3
P/3.8
P/7.8
P/10.5
P/16.6
P/21.5
V/4.0
V/7.9
V/10.5
V/14.2
V/18.4

PRESSURE RANGE

P1 1000 psi
P2 1000-2000 psi
P3 2000-3000 psi

RETURN FILTER ▲

IL22 - 22 GPM Spin-On
IL40 - 40 GPM Spin-On
IT25 - 25 GPM In-Tank
IT40 - 40 GPM In-Tank

COOLER

CASE DRAIN COOLER FOR PISTON AND VANE PUMPS. ATTACHED TO TEFC MOTOR
C1 4 GPM (Drain)
C2 15 GPM Rear Mount 145TC MTR
C3 20 GPM Rear Mount 182-184TC MTR
C4 24 GPM Rear Mount 213-215TC MTR

NOTE:

Piston and Vane Pumps must use 10 gallon or larger reservoir

Combination of reservoir and pumps are generally a 2:1 reservoir to pump flow ratio. Smaller pump and motor combinations may be mounted on larger reservoirs.

MOTOR ENCLOSURE

Nachi standard horizontal power units come with totally enclosed fan cooled motors (TEFC). These motors are intended for use where moisture, dirt, and/or corrosive materials are present in indoor or outdoor locations.

MOTOR VOLTAGE

All standard horizontal power units come with 3 PHASE - 208-230/460V, 60HZ
(Single phase and special voltages available upon request)

▲ FILTER CONNECTION SIZE

IL22 - #1" NPT IT25 - #16 SAE
IL40 - #1" NPT IT40 - #16 SAE

Manifold Code

How to Order:

STATION #1 STATION #2 STATION #3 STATION #4
D05/4R - 15 - C5/OG1 - C5 - A3X - C6 - C115

MANIFOLD

ALUMINUM MANIFOLD BLOCKS

D03/*R - D03 Directional valve manifold with relief valve. (*Number of valve stations required, 6 maximum. Consult factory if more stations are required.)

D05/*R - D05 Directional valve manifold with relief valve. (*Number of valve stations required, 6 maximum. Consult factory if more stations are required.)

D08/*R - D08 Directional valve manifold with relief valve. (*Number of valve stations required, 2 maximum. Consult factory if more stations are required.)

N - No Manifold, Pressure Connection at Pump (Piston and Vane Pumps Only)

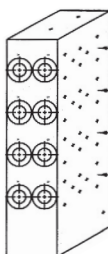
RV1 - No Manifold with 50 - 1000 PSI Relief Valve (Required for Gear Pumps)

RV2 - No Manifold with 500 - 3000 PSI Relief Valve (Required for Gear Pumps)

RELIEF VALVE PRESSURE ADJUSTMENT RANGE

N - NONE
 15 - 150 - 1500 PSI
 30 - 250 - 3000 PSI

STATION #1 IS CLOSEST TO RESERVOIR ON A MULTIPLE STATION MANIFOLD



▲ ADD "F" FOR OPTIONAL HYDRAULIC SHOCKLESS SOLENOID

■ "D03" SIZE ONLY

○ "D03" & "D05" SIZE ONLY

DIRECTIONAL AND MODULAR VALVES

DIRECTIONAL VALVES

OMIT - NOT REQUIRED

A3Z ▲ - B

A3X ▲ - B

E3X ▲ - B

C4 ▲ - B

C5 ▲ - B

C6 ▲ - B

C7Y ▲ - B

VOLTAGE

SOLENOID VALVE VOLTAGE

OMIT - NOT REQUIRED

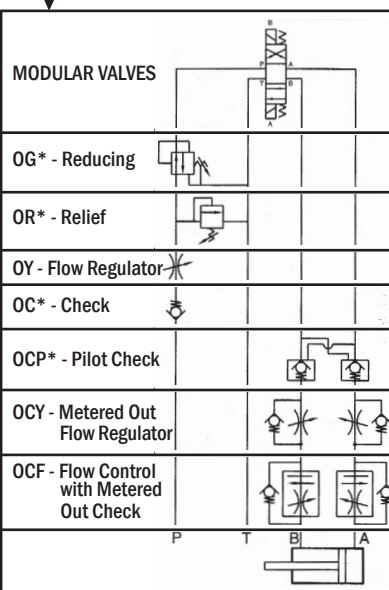
C115 - AC 115V 60HZ

C230 - AC 230V 60HZ

D1 - DC 12V

D2 - DC 24V

EASY WIRING:
 Directional control valves come standard with a large waterproof wiring box with terminal screws, solenoid indicator light(s) and (2) PF 1/2 conduit connections.



CRACKING PRESSURE

1: 29 PSI
 2: 71 PSI

CRACKING PRESSURE

1: 5.7 PSI
 2: 50 PSI
 3: 71 PSI

PRESSURE ADJUSTING RANGE

1: 0 - 1000 PSI
 3: 500 - 3000 PSI

PRESSURE ADJUSTING RANGE

C: 21 - 500 PSI (D03 & D05 ONLY)
 1: 114 - 1000 PSI
 2: 500 - 2286 PSI

NOTE: "A" and "B" port connections on "D03" and "D05" manifolds are #8SAE (3/4 - 16 UNF).

Consult factory for additional configurations.

Unit Specification Work Sheet

| | |
|-------------------------------|---------------------------------------|
| Customer _____ | Nachi W.O.# _____ |
| Customer PO# _____ | Date _____ |
| Number of Units Req'd _____ | Prepared By _____ |
| Requested Delivery Time _____ | WorkSheet.No. _____ Nachi Engineer |

Reservoir Code Requirements

| | | | | |
|-----------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|
| Required Tank Capacity _____ | Gallons | | Pump-Setting | |
| System Flow Requirement _____ | GPM | | <div style="border: 1px solid black; padding: 2px;">GPM</div> | |
| System Pressure Requirement _____ | PSI | | | |
| Pump style | <input type="checkbox"/> Gear <input type="checkbox"/> Vane <input type="checkbox"/> Piston | | | |
| Horsepower Requirement | $HP = \frac{GPM \times PSI}{1714 \times \text{Std Eff}(85\%)}$ | | <div style="border: 1px solid black; padding: 2px; display: inline-block;">HP</div> | |
| Cooler Required | <input type="checkbox"/> Drain <input type="checkbox"/> Return | <input type="checkbox"/> Value based on 85% standard efficiency | | Pump Number [] |
| Return Filter Type | <input type="checkbox"/> Inline <input type="checkbox"/> Intank <input type="checkbox"/> Special | Notes: | | |
| Reservoir Code | | | | |

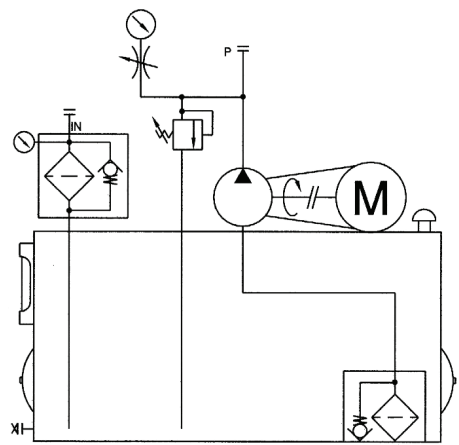
Manifold Code Requirements

| | | |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Manifold Size (Directional) | <input type="checkbox"/> D03 <input type="checkbox"/> D05 <input type="checkbox"/> D08 | |
| Relief Valve pressure Range | <input type="checkbox"/> 150 ~ 1500 psi <input type="checkbox"/> 250 ~ 3000psi <input type="checkbox"/> Not Required | |
| Directional & Modular Valves (If Required) | | |
| Station # | Spool Type (Valve) | Modular Stack Valves |
| #1 | | |
| #2 | | |
| #3 | | |
| #4 | | |
| #5 | | |
| Note: Station #1 will be closest to pressure inlet on a multiple station manifold. | | |
| Voltage Requirement | <input type="checkbox"/> AC 115V / 60Hz <input type="checkbox"/> AC 230V / 60Hz <input type="checkbox"/> DC 12V <input type="checkbox"/> DC 24V | |
| Manifold Code | | |

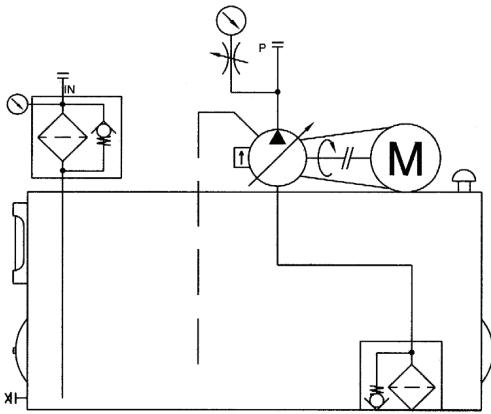
| | | | | |
|----------------------|--|-------------------------------------------------|-------------------------------------------------|-------------------------------|
| Manufacturing Number | | Approved By (with date) Nachi Manager | Checked By (with date) Nachi Engineer | Created By (with date) |
| | | | | |
| Date | | Date | | Date |

Comments:

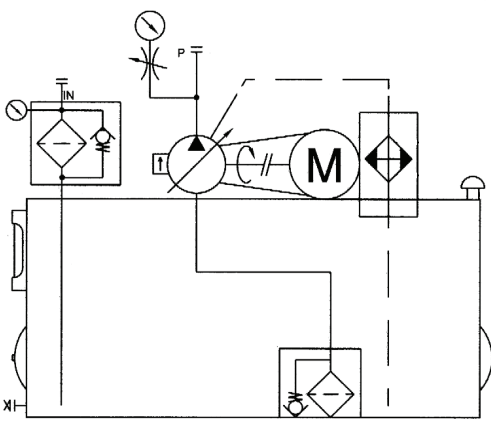
HYDRAULIC SCHEMATICS



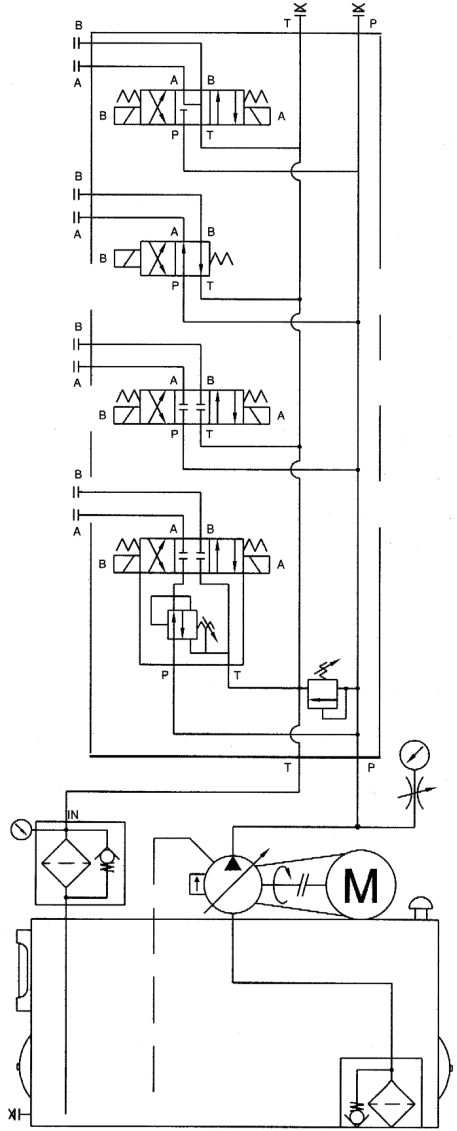
Gear Pump Unit
with Manifold Option "RV*"



Piston/Vane Pump Unit
with Manifold Option "N"



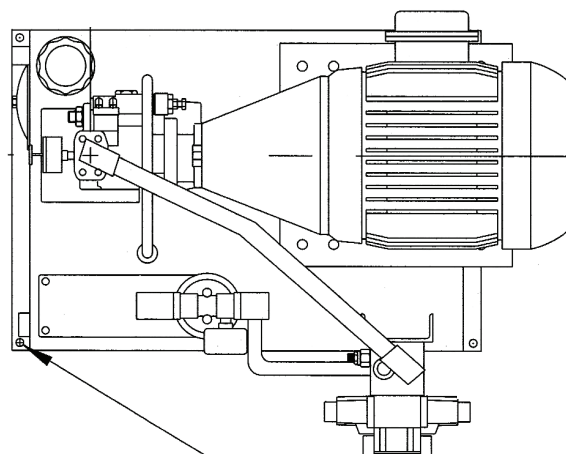
Piston/Vane Pump Unit
with "AO*" Cooler Option



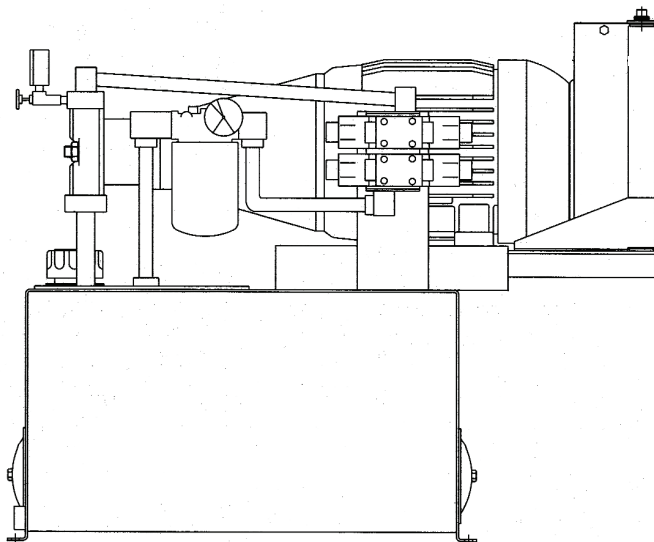
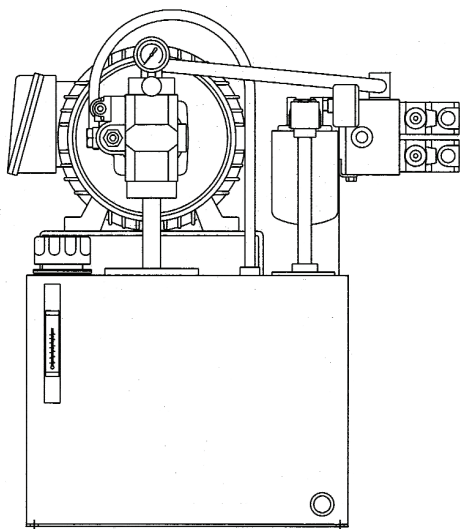
Schematic for "How to Order"
<Example Code>
(Reference pages PU 16)

Standard Unit

Measurements are approximate.
Where dimensions are critical, obtain
special quotation.



(4) 7/16" DIA. MOUNTING HOLES



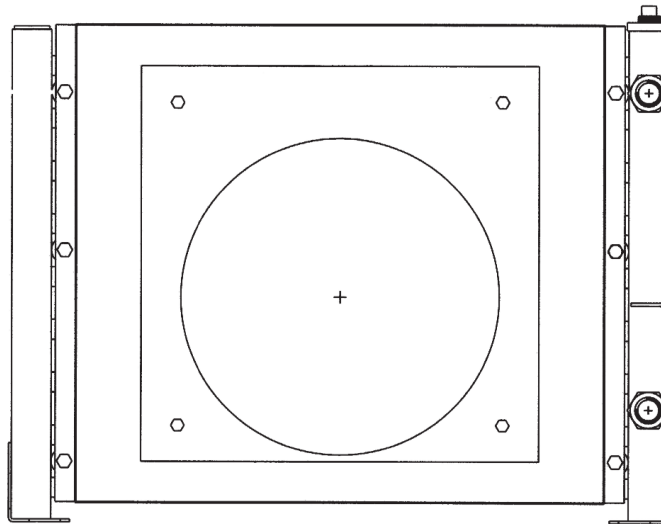
UNIT DIMENSIONAL INFORMATION

| NHID | BASIC RESERVOIR DIMENSIONS | | | | | | |
|------|----------------------------|----|------|------|----|------|------|
| | A | B | C | D | E | F | G |
| NH10 | 26 | 16 | 9.5 | 25.2 | 15 | 3.38 | 7 |
| NH20 | 26 | 16 | 15.5 | 25.2 | 15 | 3.38 | 7 |
| NH30 | 26 | 16 | 21.5 | 25.2 | 15 | 3.38 | 7 |
| NH40 | 26 | 16 | 27.5 | 25.2 | 15 | 5.38 | 9.25 |

| NHID | MANIFOLD ASSEMBLY HEIGHT (L DIMENSION) | | |
|-----------|-------------------------------------------|-------|-----------------|
| | D03 | D05 | D08 |
| 1 Station | 12.00 | 12.00 | CONSULT FACTORY |
| 2 Station | 12.00 | 12.00 | |
| 3 Station | 12.00 | 12.00 | |
| 4 Station | 12.00 | 15.25 | |
| 5 Station | 14.25 | 18.50 | |
| 6 Station | 16.25 | 21.75 | |

| | MOTOR HORSEPOWER | | | | | | |
|---|------------------|-------|-------|-------|-------|-------|-------|
| | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| J | 9.95 | 11.88 | 11.88 | 13.50 | 13.50 | 16.59 | 16.59 |
| K | 7.04 | 8.08 | 8.08 | 9.31 | 9.31 | 10.96 | 10.96 |

| | | PUMP/MOTOR ASSEMBLY LENGTH CHART (H DIMENSION) | | | | | | |
|-----------------|--------|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| | | MOTOR HORSEPOWER | | | | | | |
| | | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| AVAILABLE PUMPS | G/1.1 | 17.58 | | | | | | |
| | G/1.6 | 17.68 | 20.26 | | | | | |
| | G/2.4 | 17.8 | 20.38 | | | | | |
| | G/3.0 | 17.48 | 19.62 | 20.62 | | | | |
| | G/5.2 | 17.8 | 19.94 | 20.94 | 24.03 | 25.53 | | |
| | G/7.0 | 17.8 | 19.94 | 20.94 | 24.03 | 25.53 | | |
| | G/9.0 | 18.06 | 20.18 | 21.18 | 24.27 | 25.77 | 28.98 | |
| | G/10.4 | 18.14 | 20.25 | 21.25 | 24.34 | 25.84 | 29.05 | 30.8 |
| | G/12.3 | 18.14 | 20.25 | 21.25 | 24.34 | 25.84 | 29.05 | 30.8 |
| | P/3.8 | 21.64 | 23.09 | 24.09 | 27.75 | | | |
| | P/7.8 | 22.84 | 24.29 | 25.29 | 28.95 | 30.45 | 33.09 | |
| | P/10.5 | N/A | 24.29 | 25.29 | 28.95 | 30.45 | 33.09 | 34.84 |
| | P/16.6 | N/A | N/A | 27.44 | 30.29 | 31.79 | 34.43 | 36.18 |
| | P/21.5 | N/A | N/A | 27.44 | 30.29 | 31.79 | 34.43 | 36.18 |
| | V/4.0 | 16.75 | | | | | | |
| | V/7.9 | 17.26 | 18.96 | 19.96 | 23.05 | 24.55 | | |
| | V/10.5 | 17.26 | 18.96 | 19.96 | | | | |
| | V/14.2 | N/A | 19.74 | 20.74 | 23.83 | 25.33 | 27.97 | |
| | V/18.4 | N/A | 19.74 | 20.74 | 23.83 | 25.33 | 27.97 | |

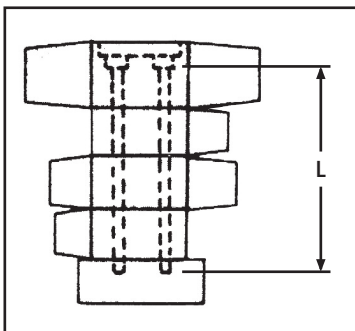


Air/Oil Return Oil Cooler

| | GPM | Max Hp Removed |
|-----|-----|----------------|
| A01 | 15 | .85 HP |
| A02 | 20 | 1.50 HP |
| A03 | 24 | 2.50 HP |
| A04 | 24 | 2.85 HP |

Optional Component Information

Bolt Kit Length



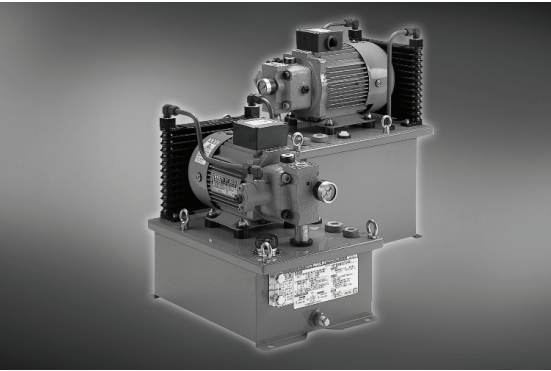
| Bolt Length for D03 |
|----------------------------------|
| Valve - 10 - 24 x 1 3/4 |
| Valve & module - 10 - 24 x 3 1/4 |
| Valve & 2 modules - 10 - 24 x 5 |

| Bolt Length for D05 |
|----------------------------------|
| Valve - 1/4 - 20 x 2 3/4 |
| Valve & module - 1/4 - 20 x 5 |
| Valve & 2 modules - 1/4 - 20 x 7 |

Note:

1. Bolt kits to be ordered separately when using modulators.
2. Bolt kits are furnished with directional valves when no modulators are required.
3. All "D03" modulators are 40mm thick.
4. "D05" modulators are 55mm thick.

Compact Power Unit with Variable Volume Vane Uni-Pump



Compact hydraulic units are widely used as a power source in such machine tool applications as NC lathe chuck opening and closing, tailstock, tool rotation, machining center spindle raise and lower operations, etc. During pressure holding, the new NSP power unit, consisting of our UVN variable volume vane uni-pump, enables machine efficiency that delivers energy savings of approximately 40% when compared with Nachi standard power units.

FEATURES

Space-Saving Lightweight Design

A smaller tank capacity makes the power unit more compact, and greatly reduces space requirements.

New Structure Increases Efficiency

Based on years of experience, the structure includes an improved pump joint that provides more efficient operation.

Greatly Improved Cooling Capacity

A powerful, energy-efficient built-in cooling system eliminates the need for fan motor wiring and coolant pipes.

SPECIFICATIONS

| Item | | Model No. | NSP-**-*VOA* | NSP-**-*V1A* | NSP-**-*V2A* |
|--------------------|------------------------|------------------------|-----------------------------------|------------------|-------------------------------------------|
| Pump Capacity | cm ³ / rev. | {in ³ /rev} | 8.0 {0.49} | 16.0 {0.98} | 26.0 {1.59} |
| Maximum pressure | MPa | {psi} | 8.0 {1160} (Full cutoff pressure) | | 7.0 {1015} (Full cutoff pressure) |
| | | | | | Allowed peak pressure: 13.0 (1885) |
| Motor Output | kW | {HP} | 0.75 {1}, 1.5 {2} | 1.5 {2}, 2.2 {3} | 2.2 {3}, 3.7 {5} |
| Tank Capacity | ℓ | {gallon} | 20 {5.28} | | 30 {7.92}, 40 {10.57} |
| Installation space | mm | {inch} | 300 X 400 {11.81 x 15.75} | | 340 x 450 {13.39 x 17.72} |
| Approximate weight | kg | {lbs} | 39 {86} (20 ℓ, 1.5kW) | | 63 {139} (30 ℓ, 2.2kW, excluding options) |

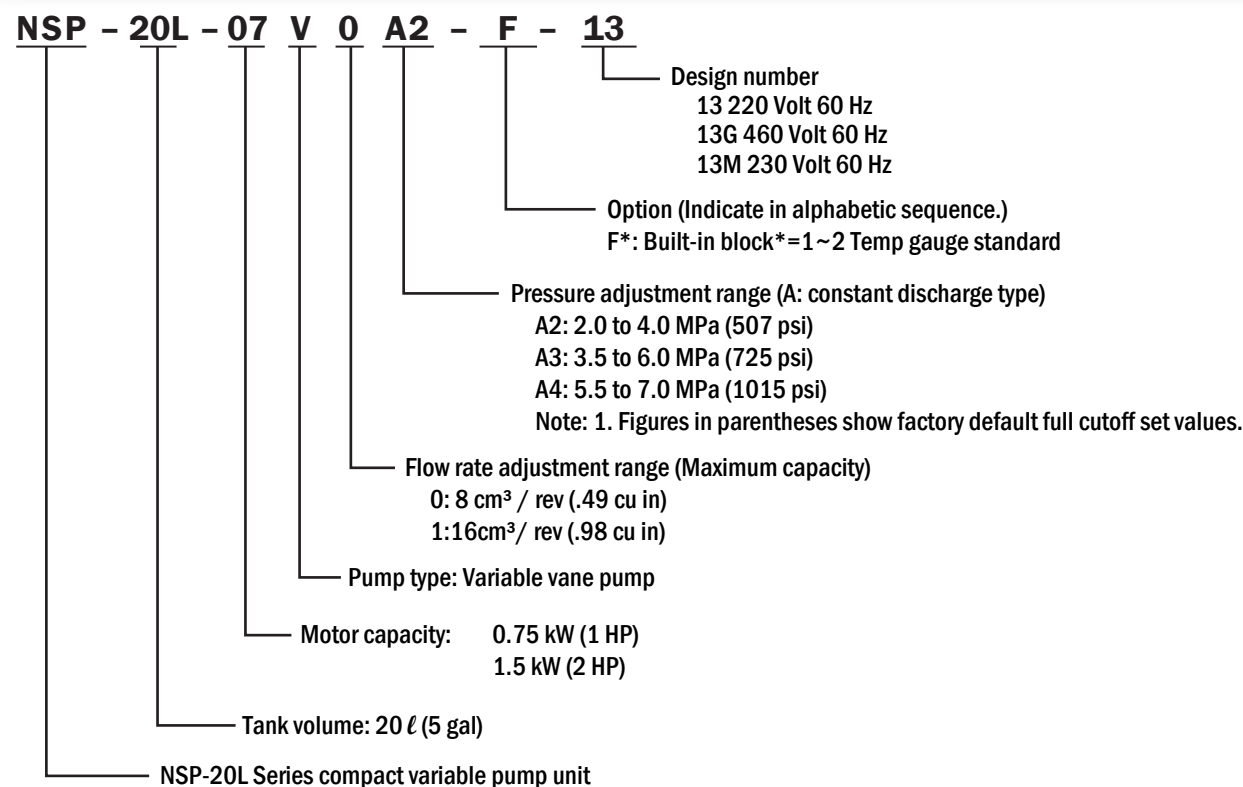
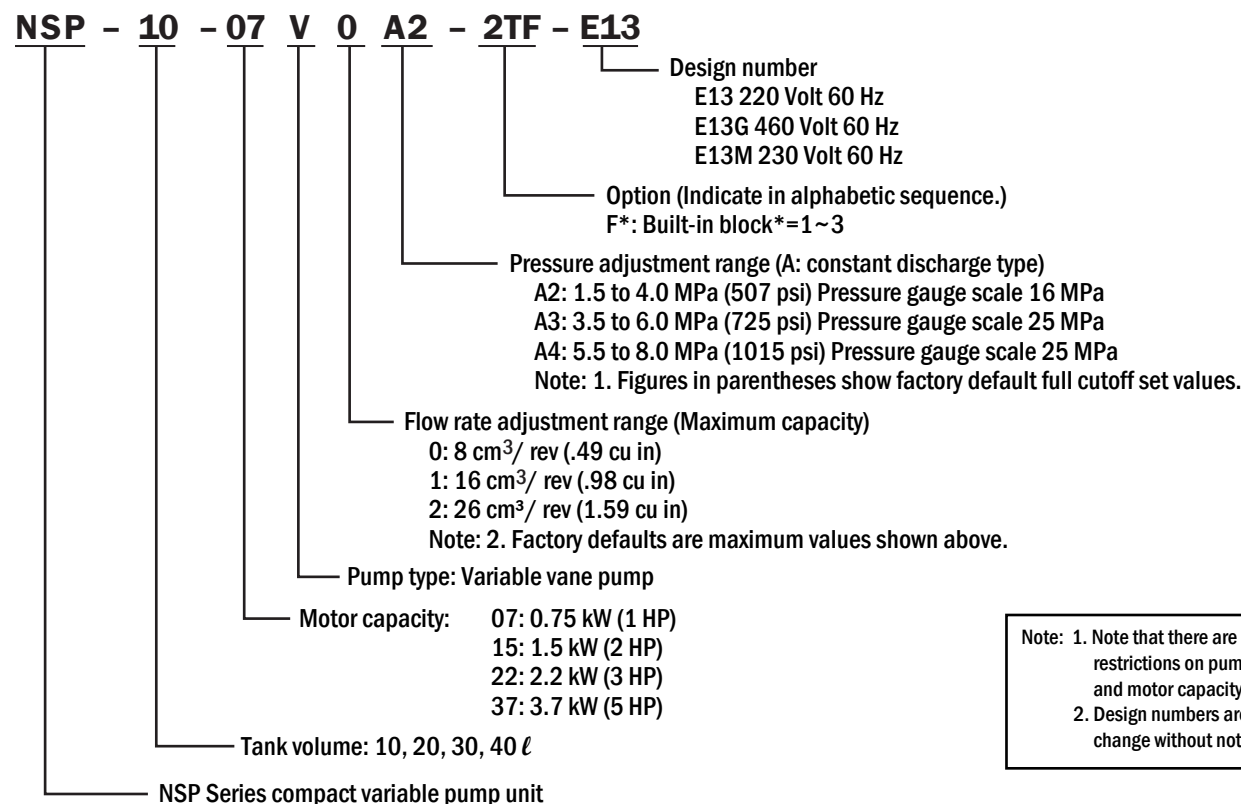
NSP-L Power Unit

A more compact, space-saving unit with the same efficiency and power capabilities as the original NSP units.



Model Code

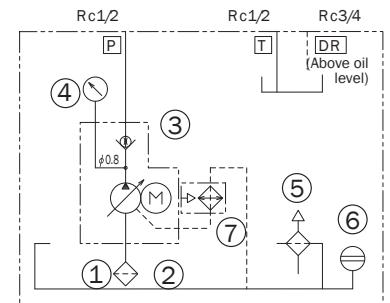
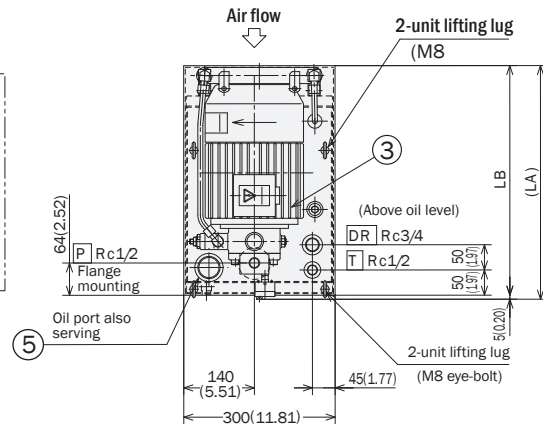
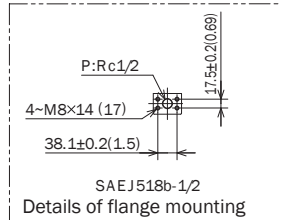
How to Order



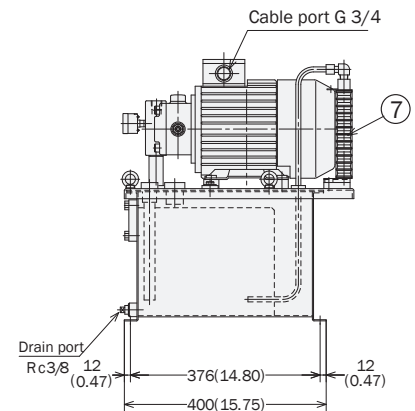
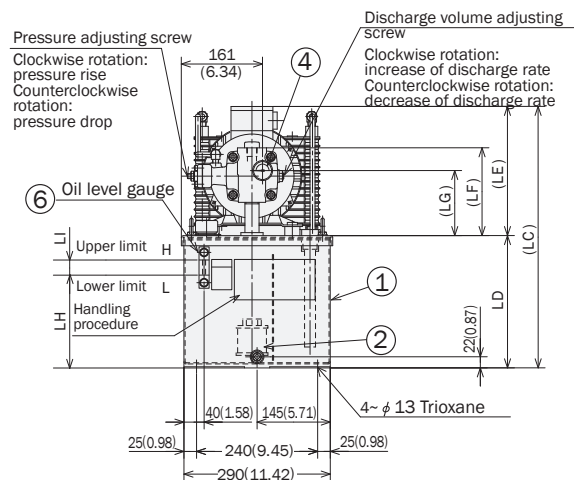
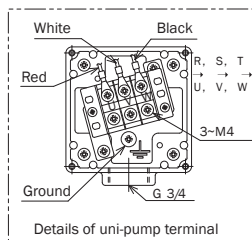
Dimensional Drawings

8.0, 16.0 cm³/ rev Series

NSP-**-**V*A*-13



Note: The unit lifting lug (eye-bolt and eye-nut) also serves as a screw for assembling the tank. If it is removed, the tank upper plate will be removed.



| PART NO. | PART NAME |
|----------|------------------------------------|
| 1 | Oil tank |
| 2 | Suction strainer |
| 3 | Uni-pump |
| 4 | Pressure gauge |
| 5 | Fluid supply port/ air breather |
| 6 | Fluid level gauge |
| 7 | Radiator |
| 8 | Flexible hose |
| 9 | Flexible hose |

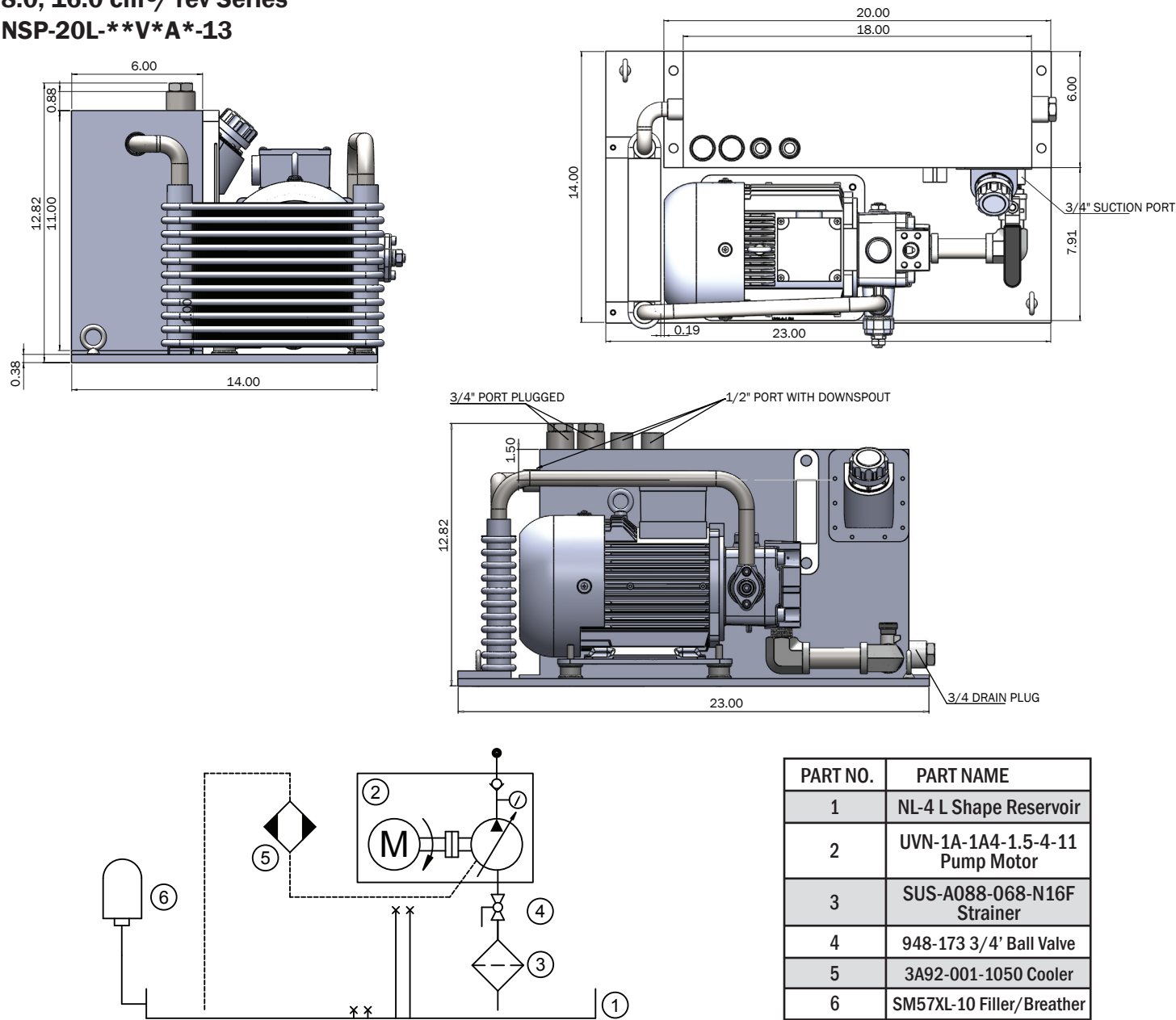
8.0, 16.0 cm³ / rev Series

| MODEL NO. | Motor (kW-P) | DIMENSIONS | | | | | | | | | | | Approximate Weight (kg) |
|------------------|-----------------|------------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|----------------------------|
| | | LA | LB | LC | LD | LE | LF | LG | LH | LI | H | L | |
| NSP-10-07V*A*-13 | 0.75 - 4 | 405 | 400 | 394 | | 234 | 154 | 109 | | | | | 33 |
| NSP-10-15V*A*-13 | 1.5 - 4 | 430 | 425 | 396 | 160 | 236 | 164 | 119 | 102 | 10 | 10L | 9L | 37 |
| NSP-10-22V*A*-13 | 2.2 - 4 | 460 | 455 | 422 | | 262 | 174 | 129 | | | | | 42 |
| NSP-20-07V*A*-13 | 0.75 - 4 | 405 | 400 | 496 | | 234 | 154 | 109 | | | | | 35 |
| NSP-20-15V*A*-13 | 1.5 - 4 | 430 | 425 | 498 | 262 | 236 | 164 | 119 | 185 | 30 | 20L | 17L | 39 |
| NSP-20-22V*A*-13 | 2.2 - 4 | 460 | 455 | 524 | | 262 | 174 | 129 | | | | | 44 |

(Excluding operating fluid)

Dimensional Drawings

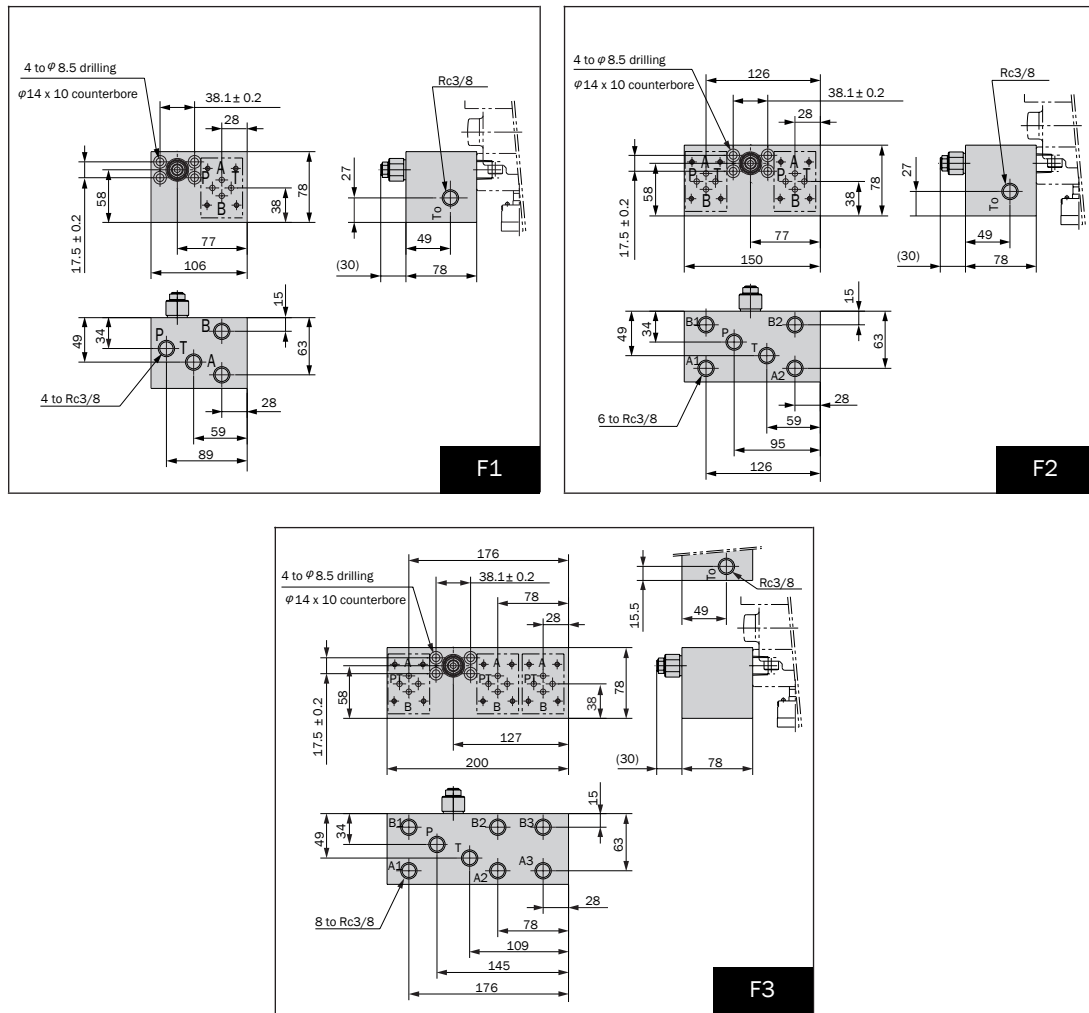
8.0, 16.0 cm³/ rev Series
NSP-20L-**V*A*-13



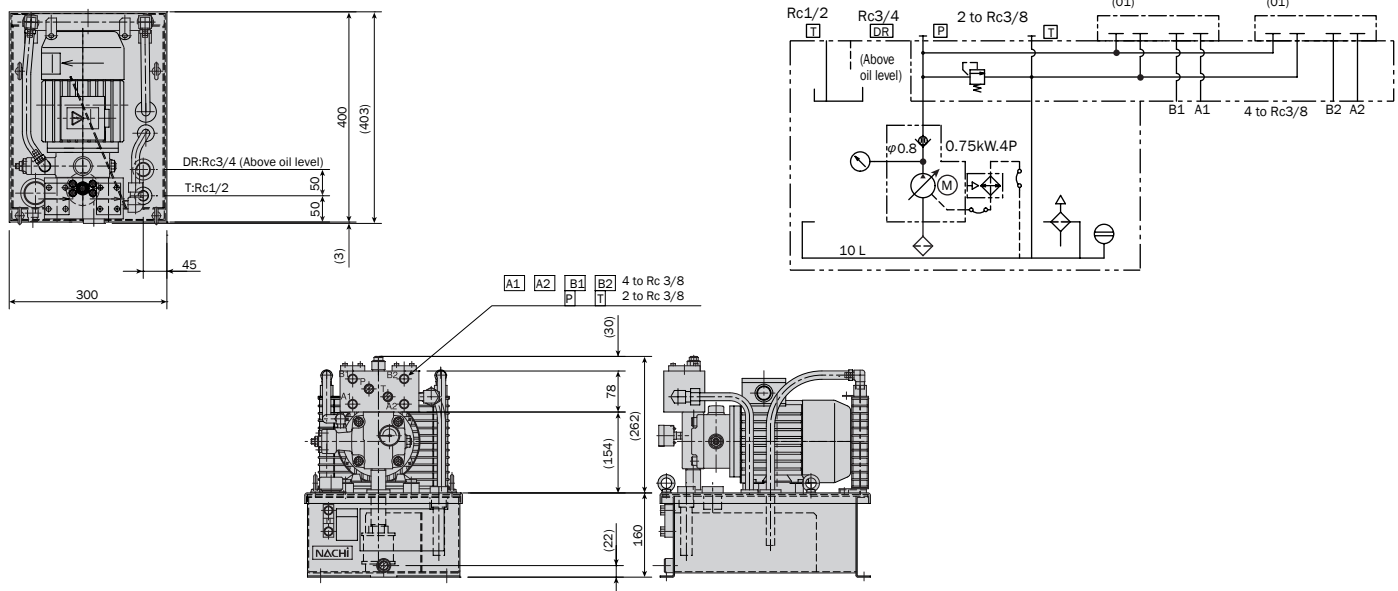
| PART NO. | PART NAME |
|----------|--------------------------------|
| 1 | NL-4 L Shape Reservoir |
| 2 | UVN-1A-1A4-1.5-4-11 Pump Motor |
| 3 | SUS-A088-068-N16F Strainer |
| 4 | 948-173 3/4" Ball Valve |
| 5 | 3A92-001-1050 Cooler |
| 6 | SM57XL-10 Filler/Breather |

NSP-20L-07V0A*(-)-E13
NSP-20L-15V0A*(-)-E13
NSP-20L-15V1A*(-)-E13
() 220V 60 Hz
(G) 460V 60 Hz
(M) 230V 60 Hz

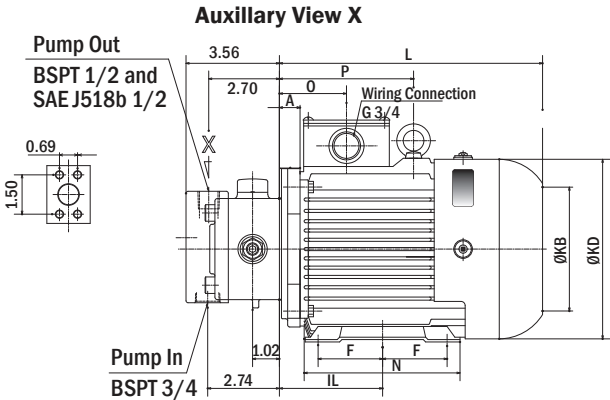
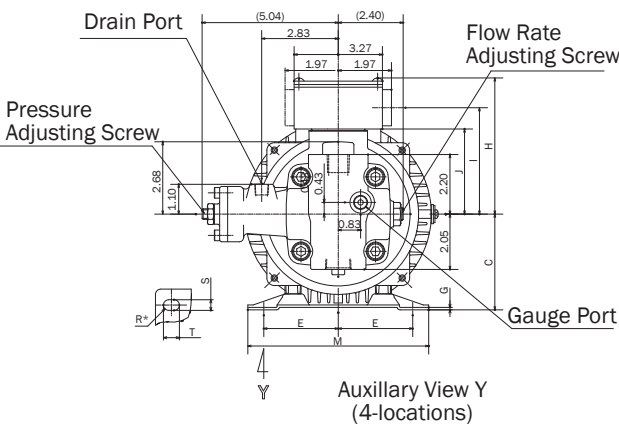
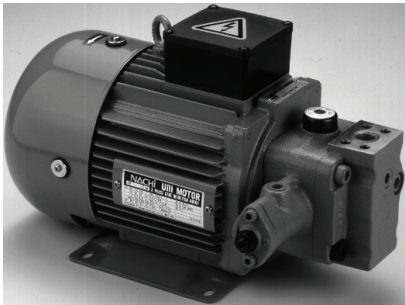
Option Details



NSP-10-07V0A2-F2-E13



UVN Uni-Pump



| MODEL NO. | DIMENSIONS INCH | | | | | | | | | | | | | | | | | | Approximate Weight (kg) |
|-------------------------|-----------------|------|------|------|------|------|------|------|------|-------|------|------|-----------|------|------|------|------|------|-------------------------|
| | A | IL | C | KD | E | F | G | H | J | L | M | N | TXS | R* | KB | O | P | I | |
| UVN-1A-*A*-0.7E-4()-11 | 0.79 | 3.54 | 3.15 | 6.18 | 2.46 | 1.97 | 0.09 | 4.72 | 2.80 | 9.06 | 6.10 | 4.72 | 0.59X0.39 | 0.20 | 4.33 | 2.56 | 5.12 | 3.62 | 37.5 |
| UVN-1A-*A*-1.5E-4(M)-11 | 0.79 | 3.94 | 3.54 | 6.89 | 2.76 | 2.46 | 0.13 | 5.04 | 3.07 | 10.04 | 6.69 | 5.91 | 0.59X0.39 | 0.20 | 4.72 | 2.56 | 5.12 | 3.94 | 46.2 |
| UVN-1A-*A*-2.2E-4(G)-11 | 0.79 | 4.33 | 3.94 | 7.68 | 3.15 | 2.76 | 0.13 | 5.43 | 3.46 | 11.22 | 7.87 | 6.50 | 0.67X0.47 | 0.24 | 5.28 | 2.56 | 5.31 | 4.33 | 57.3 |

*() - 200V; (M) - 230V; (G) - 460V

NSP Power Unit Combinations

| POWER UNIT | PUMP MODEL | | GPM RANGE | PRESSURE RANGE |
|------------------|------------|----------------------|--------------------|---------------------|
| NSP-10-07V0A2-13 | PUMP/MOTOR | UVN-1A-0A2-07E-4M-11 | 1.4 GPM TO 3.8 GPM | 217 PSI TO 580 PSI |
| NSP-10-07V0A3-13 | | UVN-1A-0A3-07E-4M-11 | 1.4 GPM TO 3.8 GPM | 507 PSI TO 870 PSI |
| NSP-10-15V0A4-13 | | UVN-1A-0A4-15E-4M-11 | 1.4 GPM TO 3.8 GPM | 797 PSI TO 1160 PSI |
| NSP-20-15V1A2-13 | PUMP/MOTOR | UVN-1A-1A2-15E-4M-11 | 3.7 GPM TP 7.6 GPM | 217 PSI TO 580 PSI |
| NSP-20-22V1A3-13 | | UVN-1A-1A3-22E-4M-11 | 3.7 GPM TP 7.6 GPM | 507 PSI TO 870 PSI |
| NSP-20-22V1A4-13 | | UVN-1A-1A4-22E-4M-11 | 3.7 GPM TP 7.6 GPM | 797 PSI TO 1160 PSI |
| NSP-30-22V2A3-13 | PUMP/MOTOR | UVN-1A-2A3-22E-4M-11 | 3.7 GPM TO 12 GPM | 507 PSI TO 870 PSI |
| NSP-30-22V2A4-13 | | UVN-1A-2A4-22E-4M-11 | 3.7 GPM TO 12 GPM | 797 PSI TP 1160 PSI |
| NSP-30-37V2A3-13 | | UVN-1A-2A3-37E-4M-11 | 3.7 GPM TO 12 GPM | 507 PSI TO 870 PSI |
| NSP-30-37V2A4-13 | | UVN-1A-2A4-37E-4M-11 | 3.7 GPM TO 12 GPM | 797 PSI TP 1160 PSI |
| NSP-40-22V2A3-13 | PUMP/MOTOR | UVN-1A-2A3-22E-4M-11 | 3.7 GPM TO 12 GPM | 507 PSI TO 870 PSI |
| NSP-40-37V2A4-13 | | UVN-1A-2A4-37E-4M-11 | 3.7 GPM TO 12 GPM | 797 PSI TP 1160 PSI |

| | |
|-------------------------|---------------|
| 10 LITERS = 2.6 GALLONS | 0.7 KW = 1 HP |
| 20 LITERS = 5 GALLONS | 1.5 KW = 2 HP |
| 30 LITERS = 8 GALLONS | 2.2 KW = 3 HP |
| 40 LITERS = 10 GALLONS | 3.7 KW = 5 HP |

Motor Selection Method

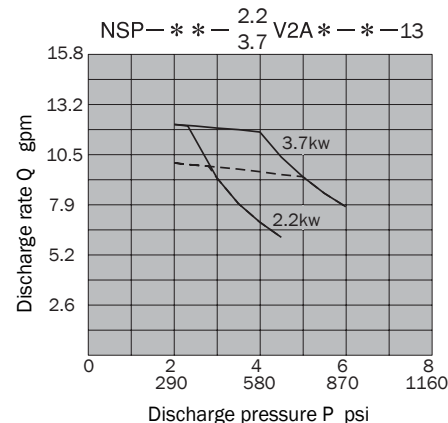
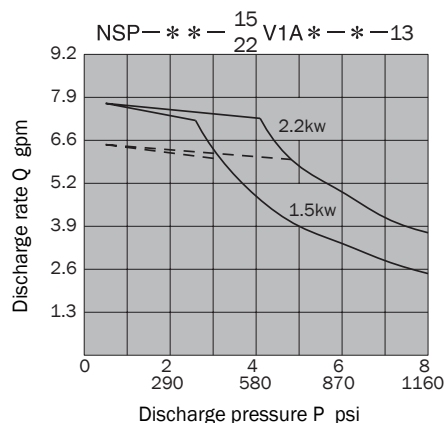
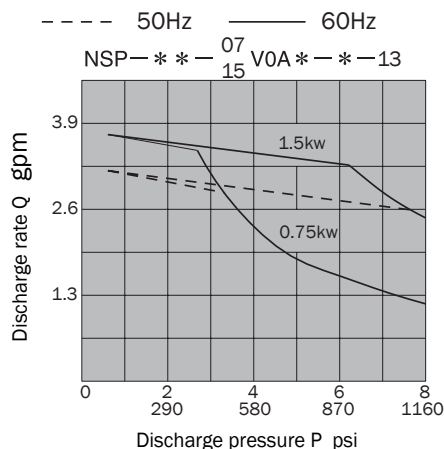
The area under a motor output curve in the graphs below is the operating range for the motor under the rated output for the motor.

Example

Find the motor to be used at a pressure of 3.5MPa {508psi} and discharge rate of 12ℓ/min {3.2gpm}.

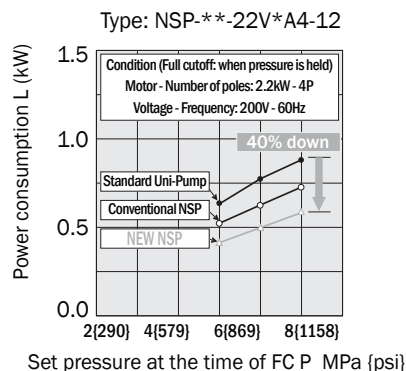
Solution

Since the intersection of the two broken lines from a pressure of 3.5MPa {508psi} and discharge rate of 12ℓ/min {3.2gpm} intersect in the area under the 1.5kW curve, it means that a 1.5kW motor should be used.

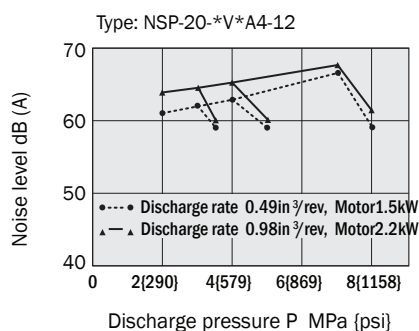


Performance Characteristics

Power Consumption



Noise Characteristics



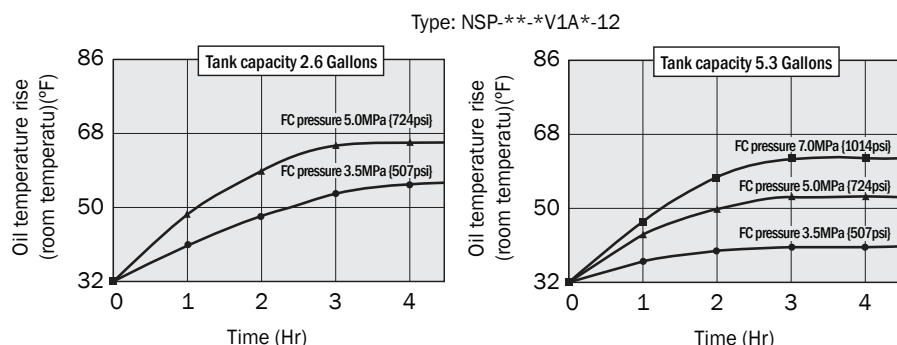
Conditions

The value in the left-hand drawing represents typical characteristics under the following conditions:
Oil used: ISO VG32 or its equivalent
Oil temperature: 104 +/- 41°F
Measuring distance: 3.3 feet around the unit

Note:

The noise characteristics depend on the installation floor base conditions and the presence of the surrounding substance reflecting the sound, and so may be different from the above description in some cases.

Oil Temperature Characteristics



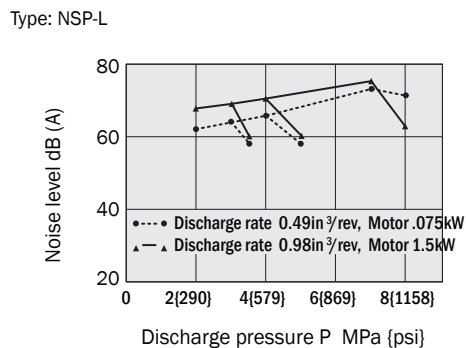
Conditions

The value on the left-hand drawing represents typical characteristics under the following conditions:
Oil used: ISO VG32 or its equivalent
Speed: 1800 min-1
Room temperature: 84°F
Motor: 0.75~2.2kW

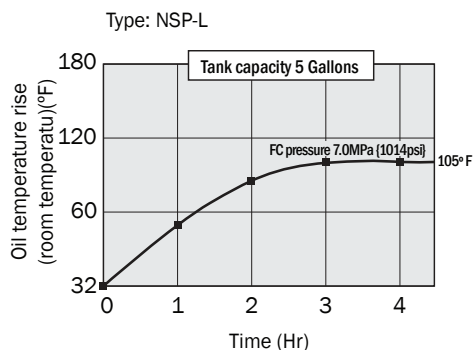
Notes:

1. For 5.0MPa (724 psi) of a 2.6 gallon tank. It should be noted that there is a big rise in oil temperature under continuous operation. In this case, we recommend use of a 5.3 gallon tank.
2. Rise of oil temperature depends on the conditions of using an actual machine, and so may be different from the above description in some cases.

Noise Characteristics



Oil Temperature Characteristics



Conditions

The value on the left-hand drawing represents typical characteristics under the following conditions:
Oil used: ISO VG32 or its equivalent
Speed: 1800 min-1
Room temperature: 65°F
Motor: 0.75~1.5kW



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