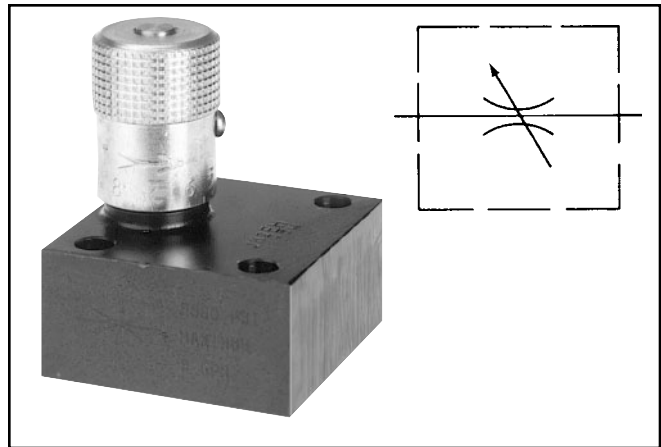


General Description

Series NS needle valves provide excellent speed control and shutoff for hydraulic applications where a reverse-flow check valve is not required. They also take minimum space for installation, conserving space.

The two-step needle valve allows fine tuning at low flow with the first three turns of the adjusting knob, with full-open flow plus conventional precision throttling with the final three turns of the knob.

Exclusive "Colorflow" color bands permit fast, accurate setting and time-saving return to a previous setting.



Specifications

| | |
|-----------------------------------|---|
| Maximum Operating Pressure | 210 Bar (3000 PSI) |
| Needles | Standard Needle on all models Fine needle optional on Models NS400 and NS600 |
| Nominal Flow | D600 37.9 LPM (10 GPM) D1200 132.5 LPM (35 GPM) |
| Port Configurations | See dimensional drawings and/or ordering information for configuration availability |

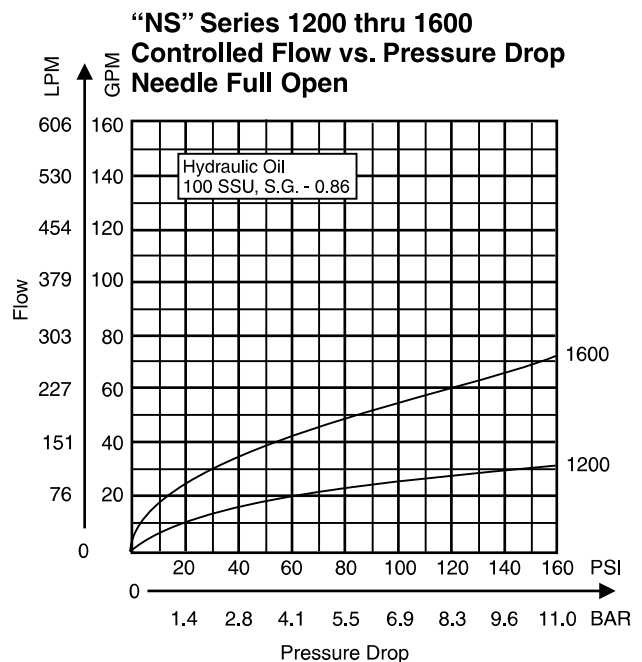
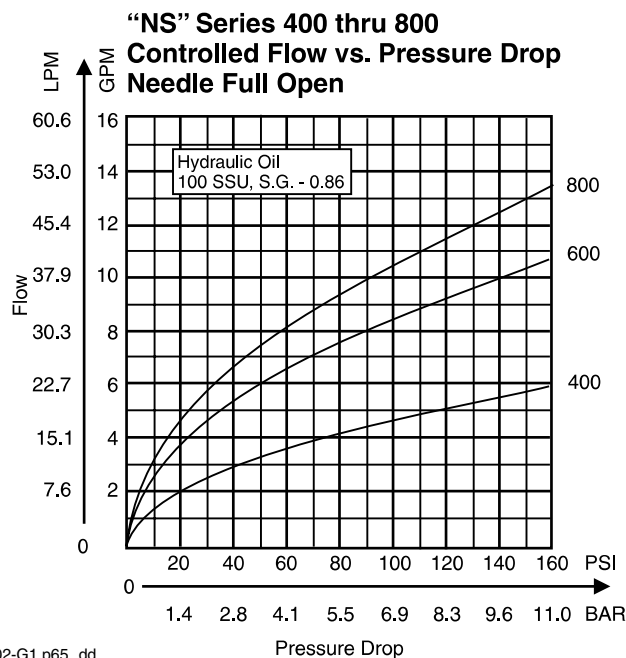
Features

- The exclusive "Colorflow" color-band reference scale on the valve stem is a great convenience and time-saver in setting the valve originally and in returning it to any previous setting.
- A simple set screw locks the valve on any desired setting.

Flow Data

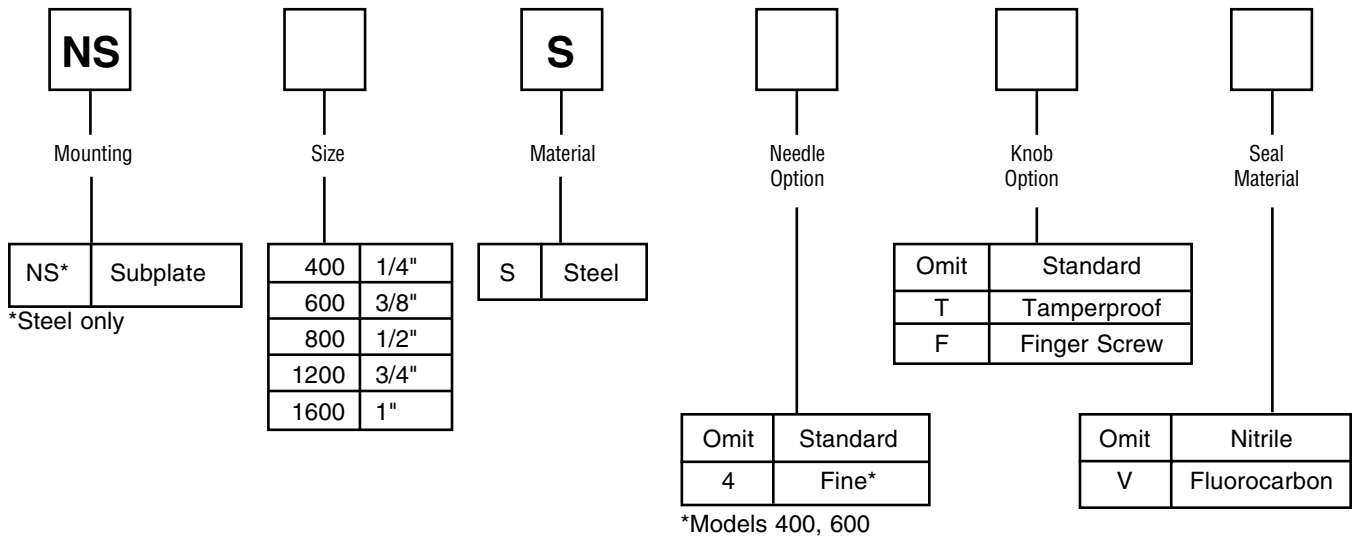
| Valve Model | Flow, Max. GPM (L/M) | Orifice Area Control Flow (Sq. In.) | Effective Control Flow C_v | Port Size |
|-------------|----------------------|-------------------------------------|------------------------------|-----------|
| NS400 | 5 (19) | .0194 | .443 | 1/4 |
| NS600 | 8 (30) | .0344 | .787 | 3/8 |
| NS800 | 15 (57) | .0427 | .976 | 1/2 |
| NS1200 | 25 (95) | .1080 | 2.470 | 3/4 |
| NS1600 | 40 (151) | .2300 | 5.250 | 1 |

Performance Curves



2502-G1.p65, dd



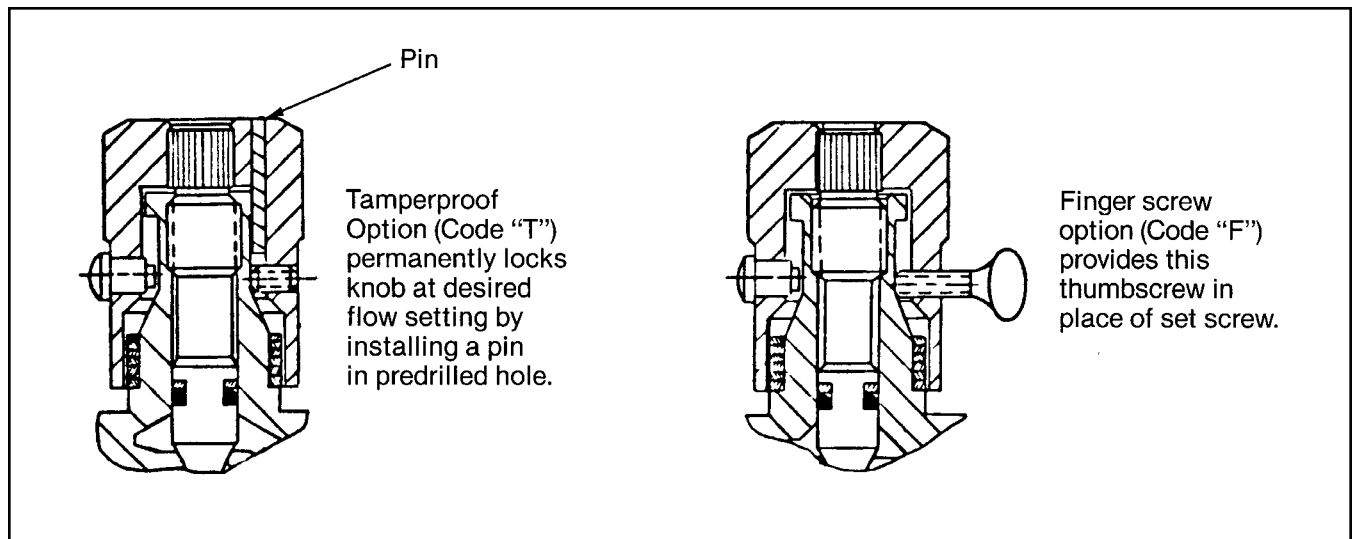


Bolt Kits

| Valve | Bolt Kit | Bolt Specification* | Bolt Torque |
|--------|----------|---------------------|-------------|
| NS400 | BK01 | 1/4-20 x 1-1/4" | 9 Ft.-Lbs. |
| NS600 | BK02 | 1/4-20 x 1-1/2" | 9 Ft.-Lbs. |
| NS800 | BK02 | 1/4-20 x 1-1/2" | 9 Ft.-Lbs. |
| NS1200 | BK05 | 5/16-18 x 1-3/4" | 19 Ft.-Lbs. |
| NS1600 | BK08 | 5/16-18 x 2-1/4" | 19 Ft.-Lbs. |

*Use SAE Grade 8 or Better.

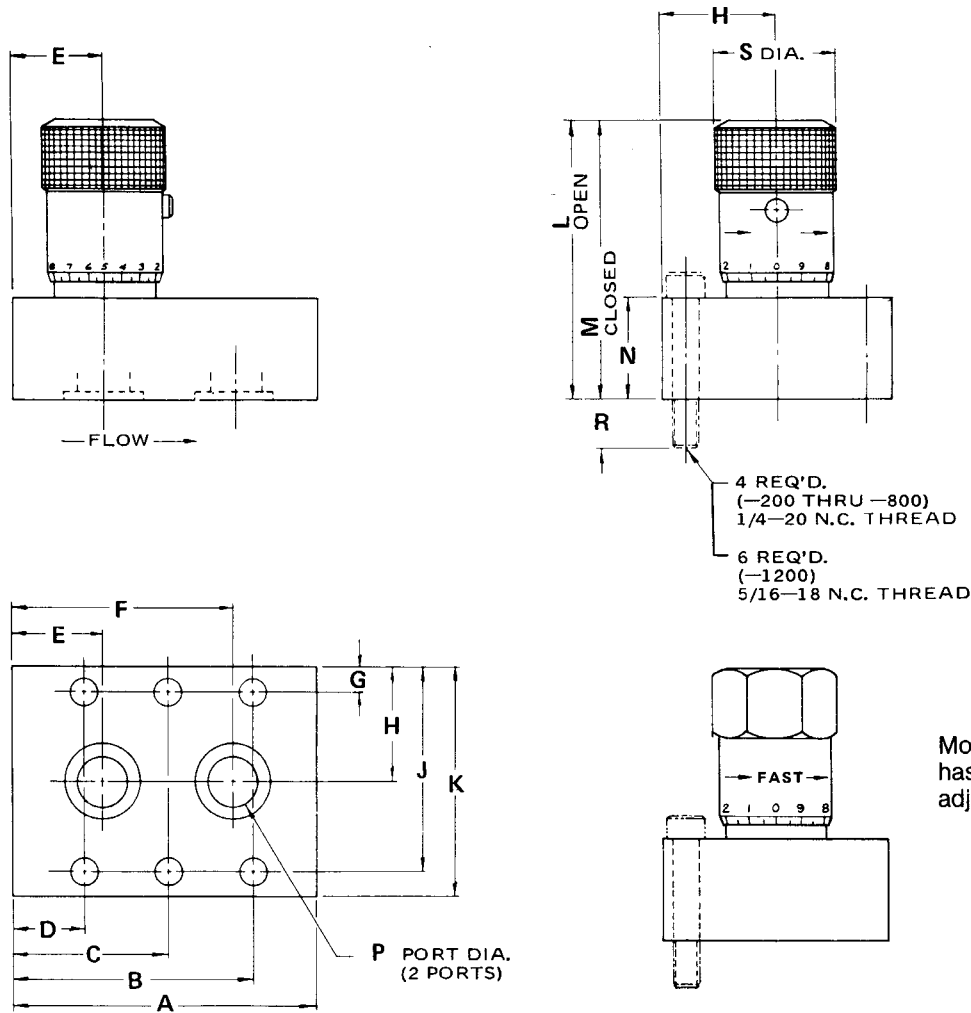
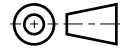
Knob Options



Millimeter equivalents for inch dimensions are shown in (**)

Models NS400S through NS1600S

Manifold mounted Needle Valves



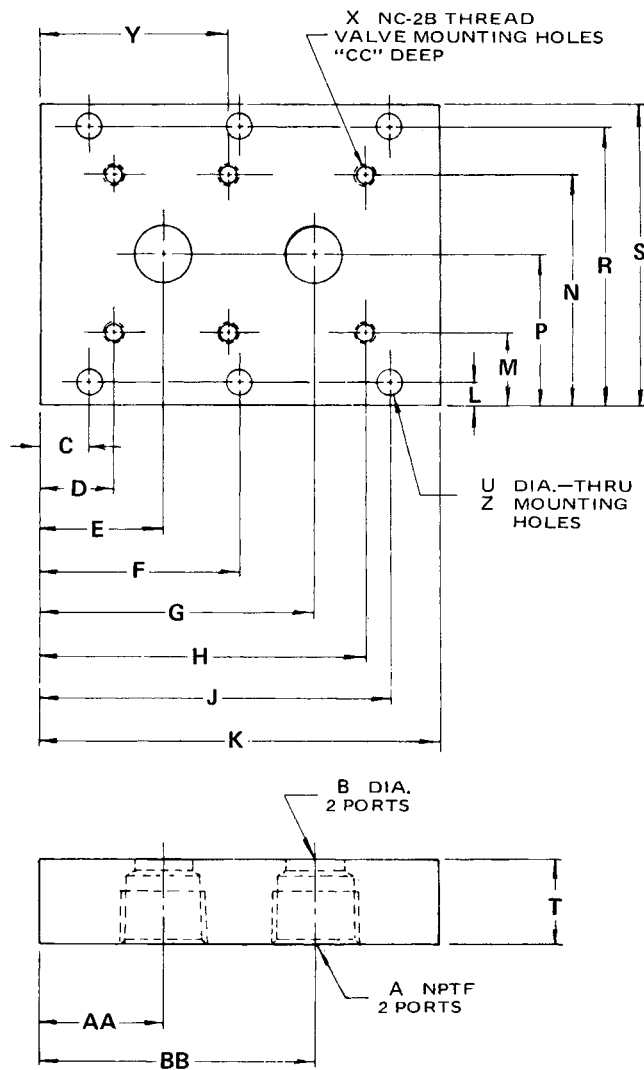
| Valve Model | A | B | C | D | E | F | G | H | J | K | L | M | N | P | R | S | Weight Lb. (Kg) |
|-------------|-----------------|-----------------|----------------|---------------|----------------|----------------|--------------|----------------|----------------|----------------|-----------------|-----------------|----------------|---------------|---------------|----------------|-----------------|
| NS400S | 1.88 (47.8) | 1.62 (41.1) | | .25 (6.4) | .44 (11.2) | 1.44 (36.6) | .22 (5.6) | .88 (22.4) | 1.53 (38.9) | 1.75 (44.5) | 2.15 (54.6) | 1.95 (49.5) | .88 (22.4) | .28 (7.1) | .44 (11.2) | .81 (20.6) | 0.8 (0.4) |
| NS600S | 2.00 (50.8) | 1.66 (42.2) | | .34 (8.6) | .50 (12.7) | 1.50 (38.1) | .25 (6.4) | 1.00 (25.4) | 1.75 (44.5) | 2.00 (50.8) | 2.65 (67.3) | 2.40 (61.0) | 1.00 (25.4) | .34 (8.6) | .50 (12.7) | 1.00 (25.4) | 1.3 (0.6) |
| NS800S | 2.97 (75.4) | 2.23 (56.6) | | .73 (18.5) | .89 (22.6) | 2.08 (52.8) | .25 (6.4) | 1.12 (28.4) | 2.00 (50.8) | 2.25 (57.2) | 3.04 (77.2) | 2.75 (69.9) | 1.00 (25.4) | .47 (11.9) | .50 (12.7) | 1.18 (30.0) | 2.3 (1.0) |
| NS1200S | 3.69 (93.7) | 3.34 (84.8) | 1.84 (46.7) | .34 (8.6) | .78 (19.8) | 2.92 (74.2) | .31 (7.9) | 1.38 (35.1) | 2.44 (62.0) | 2.75 (69.9) | 3.72 (94.5) | 3.13 (79.3) | 1.12 (28.4) | .66 (16.8) | .63 (16.0) | 1.37 (34.8) | 3.7 (2.0) |
| NS1600S | 4.38 (111.3) | 4.06 (100.1) | 2.19 (55.6) | .31 (7.9) | 1.06 (26.9) | 3.31 (84.1) | .31 (7.9) | 1.50 (38.1) | 2.69 (68.3) | 3.00 (76.2) | 5.51 (140.0) | 4.85 (123.2) | 1.75 (44.5) | .88 (22.4) | .50 (12.7) | 1.87 (47.5) | 8.0 (4.0) |

Millimeter equivalents for inch dimensions are shown in (**)

Subplate

Reference Data Only

(Subplates are not available)



| | Valve Series | | | | |
|-----------------------|--------------|--------------|--------------|---------------|---------------|
| | NS -400 | NS -600 | NS -800 | NS -1200 | NS -1600 |
| NPTF Port Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| B | .281 (7.1) | .406 (10.3) | .469 (11.9) | .656 (16.7) | .875 (22.2) |
| C | .375 (9.5) | .375 (9.5) | .500 (12.7) | .344 (8.7) | .344 (8.7) |
| D | .562 (14.3) | .843 (21.4) | .875 (22.2) | .750 (19.1) | 1.125 (28.6) |
| E | .750 (19.1) | 1.000 (25.4) | 1.031 (26.2) | 1.188 (30.2) | 1.875 (47.6) |
| G | 1.750 (44.5) | 2.000 (50.8) | 2.219 (56.4) | 3.312 (84.1) | 4.125 (104.8) |
| H | 1.938 (49.2) | 2.156 (54.8) | 2.375 (60.3) | 3.750 (95.3) | 4.875 (123.8) |
| J | 2.125 (54.0) | 2.625 (66.7) | 2.750 (69.9) | 4.156 (105.6) | 5.656 (143.6) |
| K | 2.50 (63.5) | 3.00 (76.2) | 3.25 (82.6) | 4.50 (114.3) | 6.00 (152.4) |
| L | .344 (8.7) | .250 (6.4) | .438 (11.1) | .344 (8.7) | .344 (8.7) |
| M | .844 (21.4) | .750 (19.1) | 1.125 (28.6) | 1.062 (27.0) | 1.062 (27.0) |
| N | 2.156 (54.8) | 2.250 (57.2) | 2.875 (73.0) | 3.188 (81.0) | 3.438 (87.3) |
| P | 1.500 (38.1) | 1.500 (38.1) | 2.000 (50.8) | 2.125 (54.0) | 2.250 (57.2) |
| R | 2.656 (67.5) | 2.750 (69.9) | 3.562 (90.5) | 3.906 (99.2) | 4.156 (105.6) |
| S | 3.00 (76.2) | 3.00 (76.2) | 4.00 (101.6) | 4.25 (108.0) | 4.50 (114.3) |
| T | 1.125 (28.6) | 1.125 (28.6) | 1.125 (28.6) | 1.125 (28.6) | 1.250 (31.8) |
| U | .281 (7.1) | .281 (7.1) | .359 (9.1) | .422 (10.7) | .422 (10.7) |
| X | 1/4-20 | 1/4-20 | 1/4-20 | 5/16-18 | 5/16-18 |
| Y | — | — | — | 2.250 (57.2) | 3.000 (76.2) |
| Z | 4 Holes | 4 Holes | 4 Holes | 6 Holes | 6 Holes |
| AA | .750 (19.1) | 1.000 (25.4) | 1.031 (26.2) | 1.188 (30.2) | 1.875 (47.6) |
| BB | 1.750 (44.5) | 2.000 (50.8) | 2.219 (56.4) | 3.312 (84.5) | 4.125 (104.8) |
| CC | .505 (12.8) | .525 (13.3) | .525 (13.3) | .525 (13.3) | .525 (13.3) |