NIPPON STEEL

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NSMAX™-GR Connection
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NIPPON STEEL

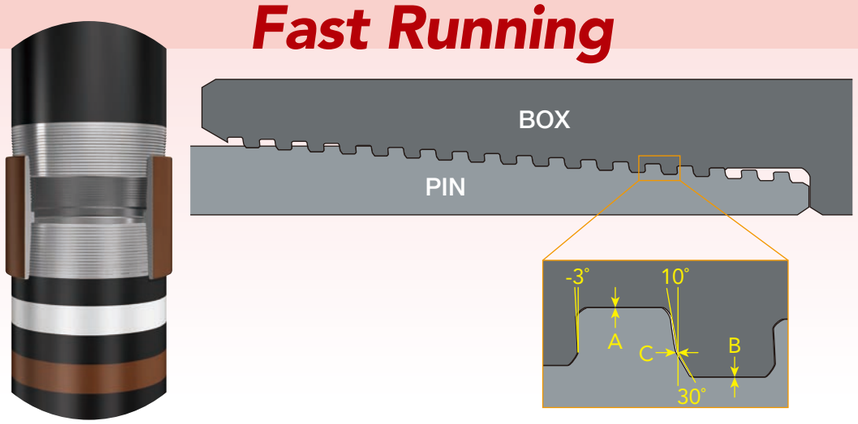
# NSMAX™-GR Connection

Pipes & Tubes


**NIPPON STEEL CORPORATION**

# NSMAX™-GR: optimizing your wells Total Cost Savings

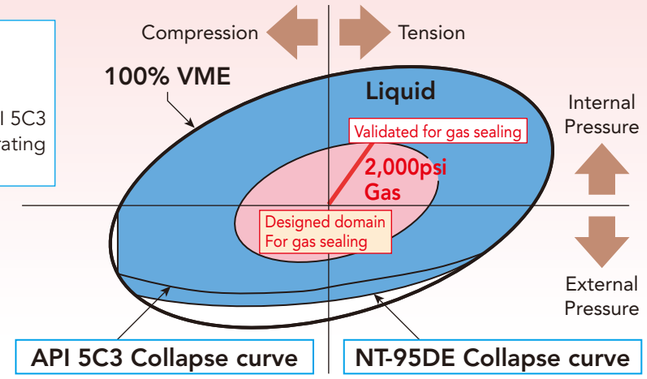
## Fast Running




| Type | Stepped tapered thread | |
|---|---|---|
| Threads / inch | 3 | ***Quick make-up*** |
| A | Controlled Clearance | ***Sealability*** |
| B | | |
| C | | ***Compression (PBYS100%)*** |
| Stabbing angle | 10 deg. | |
| | 30 deg. | ***No cross-threading*** |
| Load angle | -3 deg. | ***No jump-out*** |

## Reliable Performance

Tensile: 100% PBYS
Compression: 100% PBYS
Internal pressure: 100% VME
External pressure: Exceeding API 5C3 API Collapse rating for NT-95DE




## Rig Time Saving

- Lesser galling susceptibility versus older connection designs in this segment
- Low risk of cross threading (= stable stabbing)
- Low probability of having to break out / re- make up, results in faster running

## Well Integrity

- Cost effective thread and coupled connection option for critical well application
- API 5C5 2017 Cal- I validated using 194 deg F. baking temperature + 2,000psi internal Gas Test
- Good SAF (Stress Amplification Factor) performance

| OD | Weight | Wall | drift | t/D | Connection dimension | | | | | | Connection performance of NT-95DE ( min. SMYS: 95 ksi, min. wall factor: 92.5% ) | | | | | Connection performance of J55 ( min. SMYS: 55 ksi, min. wall factor: 92.5% ) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Group | Connection OD (nom) | Connection ID (nom) | Make-up loss | Coupling length | Critical cross section | Tensile yield strength | Compressive yield strength | Internal yield pressure | External (collapse) presure | Opt. make-up torque | Tensile yield strength | Compressive yield strength | Internal yield pressure | External (collapse) presure | Opt. make-up torque |
| inch | lbs/ft | inch | inch | | | inch | inch | inch | inch | sqin. | klbs | klbs | psi | psi | ft.lbs | klbs | klbs | psi | psi | ft.lbs |
| 18 | 94.00 | 0.500 | 16.812 | 0.028 | 2 | 18.937 | 17.000 | 5.549 | 12.280 | 27.489 | 2,611 | 2,611 | 4,880 | 1,300 | 28,300 | 1,512 | 1,512 | 2,830 | 1,060 | 17,300 |
| | 105.00 | 0.562 | 16.688 | 0.031 | | 18.937 | 16.876 | 5.549 | 12.280 | 30.788 | 2,925 | 2,925 | 5,490 | 1,810 | 31,300 | 1,693 | 1,693 | 3,180 | 1,440 | 19,100 |
| | 117.00 | 0.625 | 16.562 | 0.035 | 3 | 19.055 | 16.750 | 6.252 | 13.685 | 34.116 | 3,241 | 3,241 | 6,100 | 2,450 | 40,100 | 1,876 | 1,876 | 3,530 | 1,820 | 26,500 |
| | 119.00 | 0.640 | 16.532 | 0.036 | | 19.055 | 16.720 | 6.252 | 13.685 | 34.904 | 3,316 | 3,316 | 6,250 | 2,610 | 41,000 | 1,920 | 1,920 | 3,620 | 1,910 | 27,100 |
| | 128.00 | 0.688 | 16.500★ | 0.038 | | 19.055 | 16.624 | 6.252 | 13.685 | 37.418 | 3,555 | 3,555 | 6,720 | 3,180 | 43,600 | 2,058 | 2,058 | 3,890 | 2,200 | 28,800 |
| 18 5/8 | 87.50 | 0.435 | 17.567 | 0.023 | 1 | 19.626 | 17.755 | 5.614 | 12.409 | 24.858 | 2,362 | 2,362 | 4,100 | 790 | 27,700 | 1,367 | 1,367 | 2,380 | 630 | 16,500 |
| | 94.50 | 0.468 | 17.501 | 0.025 | | 19.626 | 17.689 | 5.614 | 12.409 | 26.696 | 2,536 | 2,536 | 4,420 | 970 | 27,900 | 1,468 | 1,468 | 2,560 | 780 | 16,600 |
| | 96.50 | 0.486 | 17.500★ | 0.026 | 2 | 19.626 | 17.653 | 5.549 | 12.280 | 27.695 | 2,631 | 2,631 | 4,590 | 1,080 | 28,100 | 1,523 | 1,523 | 2,660 | 880 | 17,300 |
| | 101.00 | 0.510 | 17.500★ | 0.027 | | 19.626 | 17.605 | 5.549 | 12.280 | 29.024 | 2,757 | 2,757 | 4,810 | 1,250 | 29,400 | 1,596 | 1,596 | 2,790 | 1,020 | 18,100 |
| | 106.00 | 0.531 | 17.375 | 0.029 | | 19.626 | 17.563 | 5.549 | 12.280 | 30.184 | 2,867 | 2,867 | 5,010 | 1,400 | 30,500 | 1,660 | 1,660 | 2,900 | 1,140 | 18,800 |
| | 109.40 | 0.563 | 17.311 | 0.030 | | 19.626 | 17.499 | 5.549 | 12.280 | 31.947 | 3,035 | 3,035 | 5,310 | 1,650 | 32,100 | 1,757 | 1,757 | 3,080 | 1,330 | 19,700 |
| | 112.00 | 0.579 | 17.279 | 0.031 | 3 | 20.000 | 17.467 | 6.252 | 13.685 | 32.825 | 3,118 | 3,118 | 5,460 | 1,790 | 43,500 | 1,805 | 1,805 | 3,160 | 1,420 | 25,500 |
| | 115.00 | 0.594 | 17.249 | 0.032 | | 20.000 | 17.437 | 6.252 | 13.685 | 33.648 | 3,197 | 3,197 | 5,610 | 1,930 | 44,600 | 1,851 | 1,851 | 3,250 | 1,510 | 26,200 |
| | 122.00 | 0.636 | 17.165 | 0.034 | | 20.000 | 17.353 | 6.252 | 13.685 | 35.943 | 3,415 | 3,415 | 6,000 | 2,340 | 44,600 | 1,977 | 1,977 | 3,470 | 1,760 | 28,100 |
| | 136.00 | 0.693 | 17.051 | 0.037 | | 20.000 | 17.239 | 6.252 | 13.685 | 39.040 | 3,709 | 3,709 | 6,540 | 2,960 | 45,200 | 2,147 | 2,147 | 3,790 | 2,090 | 30,400 |
| 20 | 94.00 | 0.438 | 18.936 | 0.022 | 1 | 21.000 | 19.124 | 5.661 | 12.504 | 26.918 | 2,557 | 2,557 | 3,850 | 650 | 30,700 | 1,480 | 1,480 | 2,230 | 520 | 17,500 |
| | 106.50 | 0.500 | 18.812 | 0.025 | 2 | 21.000 | 19.000 | 5.596 | 12.374 | 30.631 | 2,910 | 2,910 | 4,390 | 960 | 31,000 | 1,685 | 1,685 | 2,540 | 770 | 18,500 |
| | 117.00 | 0.563 | 18.686 | 0.028 | | 21.000 | 18.874 | 5.596 | 12.374 | 34.379 | 3,266 | 3,266 | 4,950 | 1,350 | 34,400 | 1,891 | 1,891 | 2,860 | 1,100 | 20,600 |
| | 133.00 | 0.635 | 18.542 | 0.032 | 3 | 21.063 | 18.730 | 6.315 | 13.811 | 38.631 | 3,670 | 3,670 | 5,580 | 1,900 | 45,000 | 2,125 | 2,125 | 3,230 | 1,500 | 29,300 |
| | 144.00 | 0.693 | 18.500★ | 0.035 | | 21.063 | 18.614 | 6.315 | 13.811 | 42.034 | 3,993 | 3,993 | 6,090 | 2,430 | 45,300 | 2,312 | 2,312 | 3,530 | 1,810 | 31,600 |

★ special drift