

# SUBMITTAL DATA SHEET

Series Name: Star Pro Series  
Model Number: CSS18CD(O)(29P)/ASH18SG32(29H)

| Air Handler Heat Pump System |                             |
|------------------------------|-----------------------------|
| Location:                    | Approval:                   |
| Engineer:                    | Date:                       |
| Submitted to:                | Construction:               |
| Submitted by:                | Unit Qty:                   |
| Reference:                   | Unit Designation (Model #): |



| INDOOR SPECIFICATION                |                                 |
|-------------------------------------|---------------------------------|
| Indoor Air Flow (High/Low) (CFM)    | 650/420                         |
| Indoor Noise Level (High/Low) (dBA) | 38.5/34                         |
| Dimension (W×D×H)                   | inch 17-33/64×21-1/32×45        |
|                                     | mm 445×534×1143                 |
| Package (W×D×H)                     | inch 20-55/64×26-37/64×46-17/64 |
|                                     | mm 530×675×1175                 |
| Net/Gross Weight                    | lbs 114/127                     |
|                                     | kg 51.5/57.5                    |

| OUTDOOR SPECIFICATION        |                                |
|------------------------------|--------------------------------|
| Compressor Type              | ROTARY                         |
| Compressor Model             | KSN140D33UFZ3                  |
| Refrigerant                  | R32                            |
| Refrigerant Oil Charge(mL)   | 420                            |
| Refrigerant Oil              | VG74                           |
| Outdoor Air Flow (Max) (CFM) | 2000.0                         |
| Outdoor Noise Level (dBA)    | 54                             |
| Dimension (W×D×H)            | inch 36-1/32×25-19/32×13-37/64 |
|                              | mm 915×650×345                 |
| Package (W×D×H)              | inch 40-5/32×28-15/16×17-1/8   |
|                              | mm 1020×735×435                |
| Net/Gross Weight             | lbs 84/92                      |
|                              | kg 38/41.5                     |

| EFFICIENCY |      |         |      |
|------------|------|---------|------|
| Cooling    |      | Heating |      |
| SEER2      | 18.4 | HSPF2   | 8.60 |
| EER2       | 11.5 | COP     | 3.85 |

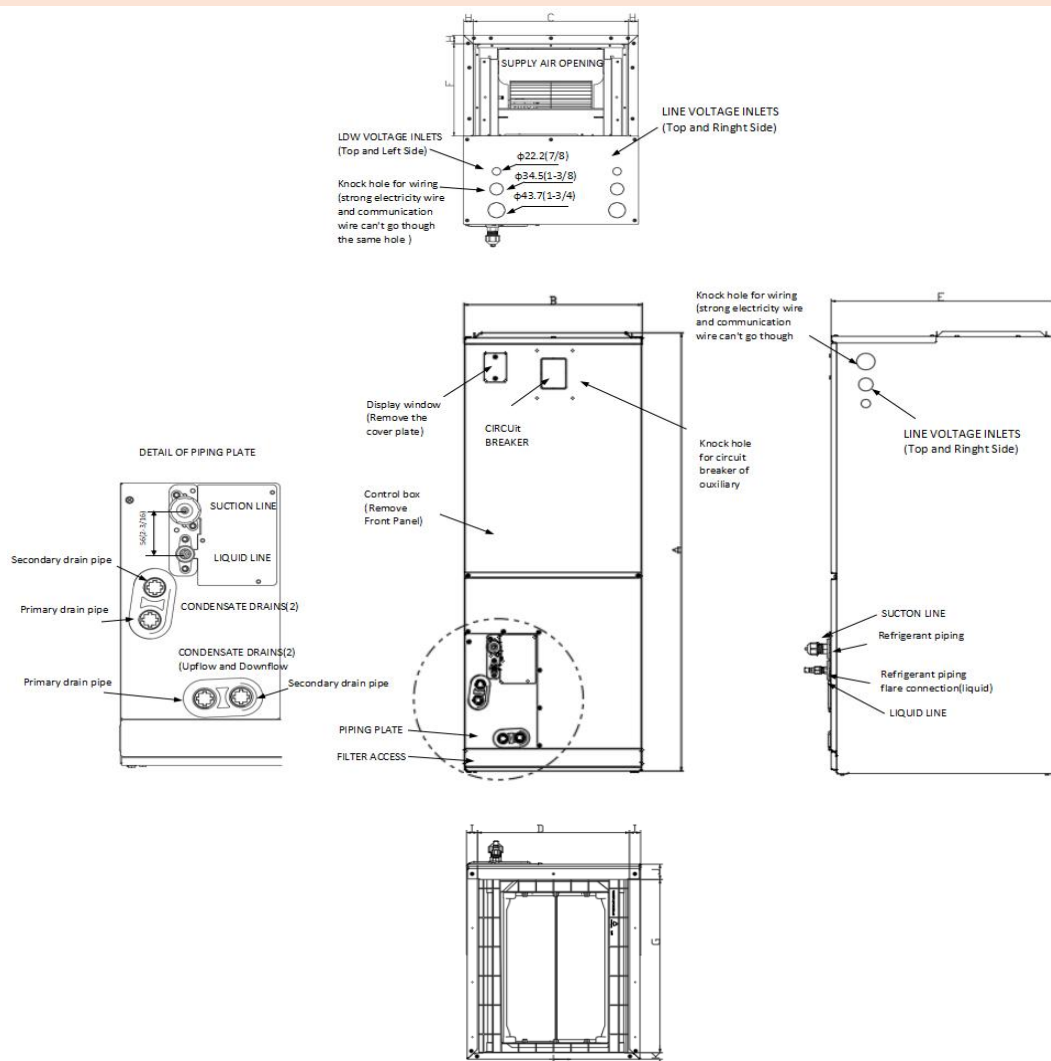
| PERFORMANCE of Cooling                                                        |               |
|-------------------------------------------------------------------------------|---------------|
| Cooling (Btu/hr)                                                              |               |
| Rated Capacity                                                                | 18000         |
| Min/Max Capacity                                                              | 5350~20000    |
| Standard Operating Range(°F/°C)                                               | 5~131(-15~55) |
| Rated Cooling Conditions: Indoor: 80°F DB/67°F WB<br>Outdoor: 95°F DB/75°F WB |               |

| PERFORMANCE of Heating                                                                                          |               |
|-----------------------------------------------------------------------------------------------------------------|---------------|
| Heating (Btu/hr)                                                                                                |               |
| 1. @ 47°F Rated                                                                                                 | 19000         |
| 1. @ 47°F Min/Max Capacity                                                                                      | 5600~19000    |
| 2. @ 17°F Rated                                                                                                 | 11900         |
| 3. @ 5°F Rated: Capacity                                                                                        | 14500         |
| Standard Operating Range(°F/°C)                                                                                 | -4~75(-20~24) |
| 1. Rated Heating Conditions: Indoor: 70°F DB/60°F WB<br>Outdoor: 47°F DB/43°F WB                                |               |
| 2. Rated Heating Conditions: Indoor: 70°F DB/60°F WB<br>Outdoor: 17°F DB/15°F WB                                |               |
| 3. Heating Conditions, Compressor Operating at Max. Frequency Indoor: 70°F DB/60°F WB<br>Outdoor: 5°F DB/5°F WB |               |

| ELECTRICAL                       |                                        |
|----------------------------------|----------------------------------------|
| Indoor Power Supply              | 208/230V,60Hz,1Ph                      |
| Indoor MCA 115V/(208/230V)       | 3.5                                    |
| Indoor MOP                       | 6                                      |
| Outdoor Power Supply             | 208/230V,60Hz,1Ph                      |
| Outdoor MCA                      | 16                                     |
| Outdoor MOP                      | 20                                     |
| Communication Wiring             | AWG 25×3 Shielded                      |
| Compressor RLA                   | 6.8                                    |
| Outdoor Fan Motor RLA            | 2                                      |
| Outdoor Fan Motor W              | 75                                     |
| Indoor Fan Motor RLA             | 2.6                                    |
| Indoor Fan Motor W               | 249                                    |
| System Power Input @ Cooling (W) | 1565(400 ~ 1900)                       |
| System Power Input @ Heating (W) | 1450(340 ~ 1650)                       |
| MCA: Min. circuit amps (A)       | MOCP: Max. over current protection (A) |
| RLA: Rated load amps (A)         | W: Fan motor rated output (W)          |

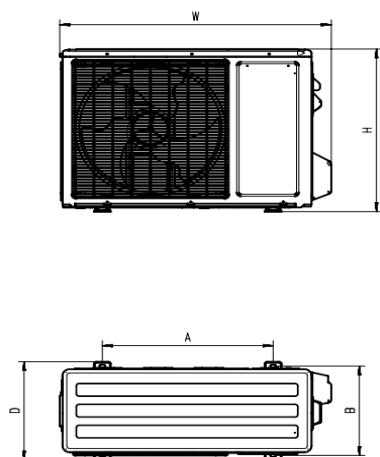
| PIPING                                          |               |
|-------------------------------------------------|---------------|
| Throttle type(Indoor)                           | Piston        |
| Throttle type(Outdoor)                          | Capillary     |
| Liquid Size                                     | 9.52mm(3/8in) |
| Gas Size                                        | 19mm(3/4in)   |
| Max. Piping Length(ft/m)                        | 98.4(30)      |
| Max. Height Difference(ft/m)                    | 65.6(20)      |
| Max. Pre-charged Length(ft/m)                   | 24.6(7.5)     |
| Refrigerant Pre-charged Amount(oz/kg)           | 56.44(1.6)    |
| Additional Charge of Refrigerant((oz/ft)/(g/m)) | 0.52(48)      |
| Connection Method                               | Flared        |

## Indoor Unit Dimension



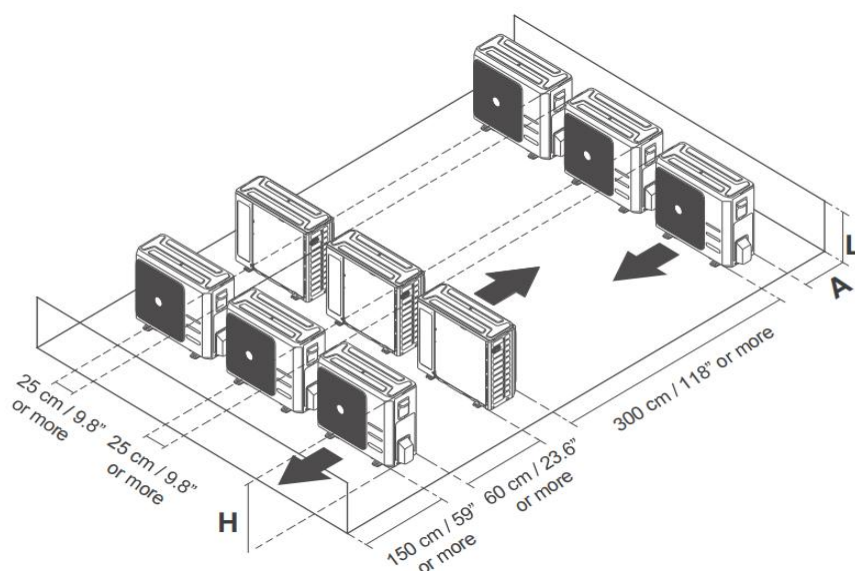
| Dimensions |                                    | Model |  | 18K/24K  |       | 30K/36K  |       | 48K/60K  |       |
|------------|------------------------------------|-------|--|----------|-------|----------|-------|----------|-------|
|            |                                    |       |  | inch     | mm    | inch     | mm    | inch     | mm    |
| A          | Model Height                       |       |  | 45-3/4   | 1162  | 49-49/64 | 1264  | 53-47/64 | 1365  |
| B          | Model width                        |       |  | 17-41/64 | 448   | 21-9/64  | 537   | 24-39/64 | 625   |
| C          | Supply Air Opening width           |       |  | 15-5/8   | 397   | 19-9/64  | 486   | 22-19/32 | 574   |
| D          | Return Air Opening Width           |       |  | 15-25/64 | 391   | 18-47/64 | 476   | 22-23/64 | 568   |
| E          | Model Depth                        |       |  | 21-7/64  | 536   | 21-7/64  | 536   | 21-7/64  | 536   |
| F          | Supply Air Opening Depth           |       |  | 10-9/32  | 261   | 10-9/32  | 261   | 10-9/32  | 261   |
| G          | Return Air Opening Depth           |       |  | 18-23/32 | 475.5 | 18-23/32 | 475.5 | 18-23/32 | 475.5 |
| H          | Supply Air Opening Clearance       |       |  | 15/16    | 24    | 15/16    | 24    | 15/16    | 24    |
| I          | Return Air Opening Side Clearance  |       |  | 1-1/8    | 28.5  | 1-1/8    | 28.5  | 1-1/8    | 28.5  |
| J          | Return Air Opening Front Clearance |       |  | 1-21/32  | 42    | 1-21/32  | 42    | 1-21/32  | 42    |
| K          | Return Air Opening Back Clearance  |       |  | 45/64    | 18    | 45/64    | 18    | 45/64    | 18    |

## Outdoor Unit Dimension

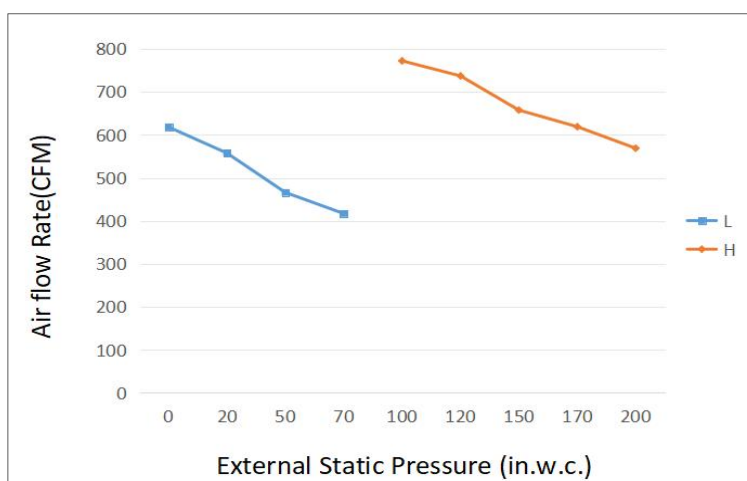


| Dimensions \ Model |                                            | 18K/24K |          | 30K/36K/48K/60K |          |
|--------------------|--------------------------------------------|---------|----------|-----------------|----------|
|                    |                                            | inch    | mm       | inch            | mm       |
| <b>W</b>           | Model width                                | 915     | 36-1/32  | 965             | 37-63/64 |
| <b>H</b>           | Model height                               | 650     | 25-19/32 | 810             | 31-57/64 |
| <b>A</b>           | Distance between left and right foot bolts | 605     | 23-13/16 | 635             | 25       |
| <b>B</b>           | Distance between front and rear foot bolts | 357     | 14-1/16  | 405             | 15-15/16 |
| <b>D</b>           | Model depth                                | 392     | 15-7/16  | 448             | 17-41/64 |

## Installation Instruction For Outdoor Unit



## Fan Performance For Indoor Unit



#### Features

- High efficiency and energy-saving, SEER2 up to 18.4
- Multi-position installation: horizontal(left or right), vertical( up or down)
- ECM fan motor with constant torque technology
- External static pressure up to 0.80 In.W.G
- 1 inch R4.2 fiberglass free insulation reduces condensation and boosts efficiency(optional)
- Optional Auxiliary heat kit up to 20kW
- Easy Maintenance
- Multiple control options available:
  - Wired controller with built-in WiFi
  - Third-Party 24V Thermostat
- Adaptive Control System
- Crankcase heater equipped as standard

# ComfortStar®

Air Conditioning & Heating Products

## Performance Capacity Ratings

### COOLING PERFORMANCE DATA

| OD_Model   | ID_Model              | Furnace | Brand       | ARIREF | ID_Type | Stage | Est_Airf_low | ACHP  | IsHSVTC |       |       |       |       |       |       |       |       |       |       |       |       |
|------------|-----------------------|---------|-------------|--------|---------|-------|--------------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CSS18CD(O) | ASH18SG32             |         | ComfortStar |        | A       | High  | 700          | H     |         |       |       |       |       |       |       |       |       |       |       |       |       |
| OUTDOOR    |                       | 59      |             |        |         |       | 63           |       |         |       |       | 67    |       |       |       |       | 71    |       |       |       |       |
| DB         | IDB (°F)              | 72      | 74          | 76     | 78      | 80    | 72           | 74    | 76      | 78    | 80    | 72    | 74    | 76    | 78    | 80    | 72    | 74    | 76    | 78    | 80    |
| 85         | TC <sup>1</sup>       | 17.10   | 17.15       | 17.20  | 17.25   | 17.31 | 18.20        | 18.25 | 18.31   | 18.36 | 18.42 | 19.30 | 19.36 | 19.42 | 19.47 | 19.53 | 20.50 | 20.56 | 20.62 | 20.69 | 20.75 |
|            | Sensible <sup>2</sup> | 13.54   | 14.66       | 15.78  | 16.91   | 17.10 | 11.15        | 12.27 | 13.39   | 14.52 | 15.64 | 8.69  | 9.82  | 10.94 | 12.06 | 13.19 | 6.23  | 7.35  | 8.47  | 9.59  | 10.72 |
|            | kW                    | 1.37    | 1.37        | 1.37   | 1.37    | 1.38  | 1.37         | 1.37  | 1.37    | 1.37  | 1.38  | 1.38  | 1.38  | 1.38  | 1.38  | 1.39  | 1.38  | 1.38  | 1.38  | 1.38  | 1.39  |
| 90         | TC <sup>1</sup>       | 16.60   | 16.65       | 16.70  | 16.75   | 16.80 | 17.70        | 17.75 | 17.81   | 17.86 | 17.91 | 18.80 | 18.86 | 18.91 | 18.97 | 19.03 | 20.00 | 20.06 | 20.12 | 20.18 | 20.24 |
|            | Sensible <sup>2</sup> | 13.28   | 14.41       | 15.53  | 16.60   | 16.60 | 10.91        | 12.03 | 13.16   | 14.28 | 15.41 | 8.47  | 9.60  | 10.72 | 11.84 | 12.97 | 6.03  | 7.15  | 8.27  | 9.39  | 10.52 |
|            | kW                    | 1.44    | 1.44        | 1.44   | 1.44    | 1.45  | 1.44         | 1.44  | 1.44    | 1.44  | 1.45  | 1.45  | 1.45  | 1.45  | 1.45  | 1.46  | 1.46  | 1.46  | 1.46  | 1.46  | 1.47  |
| 95         | TC <sup>1</sup>       | 16.20   | 16.25       | 16.30  | 16.35   | 16.40 | 17.20        | 17.25 | 17.30   | 17.36 | 17.41 | 18.30 | 18.35 | 18.38 | 18.41 | 18.45 | 19.40 | 19.46 | 19.52 | 19.58 | 19.63 |
|            | Sensible <sup>2</sup> | 13.08   | 14.21       | 15.33  | 16.20   | 16.20 | 10.68        | 11.80 | 12.92   | 14.05 | 15.17 | 8.26  | 9.38  | 10.51 | 11.63 | 12.75 | 5.78  | 6.91  | 8.03  | 9.15  | 10.28 |
|            | kW                    | 1.51    | 1.51        | 1.51   | 1.52    | 1.52  | 1.52         | 1.53  | 1.53    | 1.53  | 1.53  | 1.54  | 1.54  | 1.54  | 1.55  | 1.55  | 1.55  | 1.56  | 1.56  | 1.56  | 1.57  |
| 100        | TC <sup>1</sup>       | 15.70   | 15.75       | 15.79  | 15.84   | 15.89 | 16.70        | 16.75 | 16.80   | 16.85 | 16.90 | 17.80 | 17.85 | 17.91 | 17.96 | 18.01 | 18.90 | 18.96 | 19.01 | 19.07 | 19.13 |
|            | Sensible <sup>2</sup> | 12.83   | 13.96       | 15.08  | 15.70   | 15.70 | 10.45        | 11.57 | 12.69   | 13.82 | 14.94 | 8.04  | 9.17  | 10.29 | 11.41 | 12.54 | 5.58  | 6.71  | 7.83  | 8.95  | 10.08 |
|            | kW                    | 1.59    | 1.59        | 1.59   | 1.59    | 1.60  | 1.60         | 1.60  | 1.60    | 1.60  | 1.61  | 1.60  | 1.60  | 1.60  | 1.60  | 1.61  | 1.61  | 1.61  | 1.61  | 1.61  | 1.62  |
| 105        | TC <sup>1</sup>       | 13.61   | 13.65       | 13.69  | 13.73   | 13.77 | 14.45        | 14.49 | 14.53   | 14.58 | 14.62 | 15.37 | 15.42 | 15.44 | 15.46 | 15.50 | 16.30 | 16.34 | 16.39 | 16.44 | 16.49 |
|            | Sensible <sup>2</sup> | 10.99   | 11.94       | 12.88  | 13.61   | 13.61 | 8.97         | 9.91  | 10.85   | 11.80 | 12.74 | 6.94  | 7.88  | 8.83  | 9.77  | 10.71 | 4.86  | 5.80  | 6.75  | 7.69  | 8.64  |
|            | kW                    | 1.28    | 1.28        | 1.29   | 1.29    | 1.29  | 1.29         | 1.30  | 1.30    | 1.30  | 1.30  | 1.31  | 1.31  | 1.31  | 1.31  | 1.32  | 1.32  | 1.32  | 1.33  | 1.33  | 1.33  |
| 115        | TC <sup>1</sup>       | 12.52   | 12.56       | 12.59  | 12.63   | 12.67 | 13.29        | 13.33 | 13.37   | 13.41 | 13.45 | 14.14 | 14.18 | 14.20 | 14.23 | 14.26 | 14.99 | 15.04 | 15.08 | 15.13 | 15.17 |
|            | Sensible <sup>2</sup> | 9.89    | 10.74       | 11.59  | 12.25   | 12.25 | 8.07         | 8.92  | 9.77    | 10.62 | 11.47 | 6.24  | 7.09  | 7.95  | 8.79  | 9.64  | 4.37  | 5.22  | 6.07  | 6.92  | 7.77  |
|            | kW                    | 1.22    | 1.22        | 1.22   | 1.22    | 1.23  | 1.23         | 1.23  | 1.23    | 1.24  | 1.24  | 1.24  | 1.24  | 1.25  | 1.25  | 1.25  | 1.25  | 1.26  | 1.26  | 1.26  | 1.26  |

### HEATING PERFORMANCE DATA

| Model                                 | Heating              |       | Outdoor conditions (DB) |                 |                |                |                |             |               |               |               |              |                |
|---------------------------------------|----------------------|-------|-------------------------|-----------------|----------------|----------------|----------------|-------------|---------------|---------------|---------------|--------------|----------------|
|                                       | Indoor Conditions DB |       | 5 F<br>-15°C            | 10 F<br>-12.2°C | 17 F<br>-8.3°C | 20 F<br>-6.7°C | 25 F<br>-3.9°C | 32 F<br>0°C | 35 F<br>1.7°C | 40 F<br>4.4°C | 47 F<br>8.3°C | 50 F<br>10°C | 57 F<br>13.9°C |
| ASH18SG32<br>CSS18CD(O)<br>(208-230V) | 60 F<br>(15.6°C)     | TC    | 12.51                   | 14.99           | 17.47          | 17.96          | 18.45          | 18.94       | 19.43         | 19.91         | 20.40         | 20.89        | 21.38          |
|                                       |                      | Input | 1.76                    | 1.71            | 1.67           | 1.58           | 1.54           | 1.64        | 1.61          | 1.58          | 1.37          | 1.46         | 1.42           |
|                                       | 65 F<br>(18.3°C)     | TC    | 12.14                   | 14.55           | 16.96          | 17.44          | 17.91          | 18.39       | 18.86         | 19.33         | 19.81         | 20.28        | 20.75          |
|                                       |                      | Input | 1.79                    | 1.75            | 1.71           | 1.62           | 1.57           | 1.67        | 1.64          | 1.61          | 1.40          | 1.49         | 1.45           |
|                                       | 70 F<br>(21.1°C)     | TC    | 11.79                   | 14.13           | 16.47          | 16.93          | 17.39          | 17.85       | 18.31         | 18.77         | 19.23         | 19.69        | 20.15          |
|                                       |                      | Input | 1.83                    | 1.79            | 1.74           | 1.65           | 1.60           | 1.71        | 1.68          | 1.64          | 1.43          | 1.52         | 1.48           |
|                                       | 75 F<br>(23.9°C)     | TC    | 12.48                   | 14.71           | 16.95          | 17.24          | 17.53          | 17.82       | 18.11         | 18.40         | 18.89         | 19.00        | 19.17          |
|                                       |                      | Input | 1.92                    | 1.87            | 1.83           | 1.73           | 1.68           | 1.79        | 1.76          | 1.72          | 1.50          | 1.60         | 1.55           |