



barA universally applicable wafer type valve acc. to EN 593. The large variety of basic materials allows applications in different industries..

**Technical Data:**

|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| Nominal diameter:      | DN 20 - DN 1200(DN 20 only PN 10/16)                           |
| Face-to-face:          | EN 558 Series 20<br>ISO 5752 Series 20<br>API 609 Table 1      |
| Flange Surface Design: | EN 1092 Form A /B<br>ASME RF, FF                               |
| Top flange:            | EN ISO 5211                                                    |
| Marking:               | EN 19                                                          |
| Tightness check:       | EN 12266 (Leakage rate A)<br>ISO 5208, Category 3T             |
| Temperature range:     | -40°C up to 200°C (depending on pressure, medium and material) |
| Operating pressure:    | max. 16 bar                                                    |

**Features:**

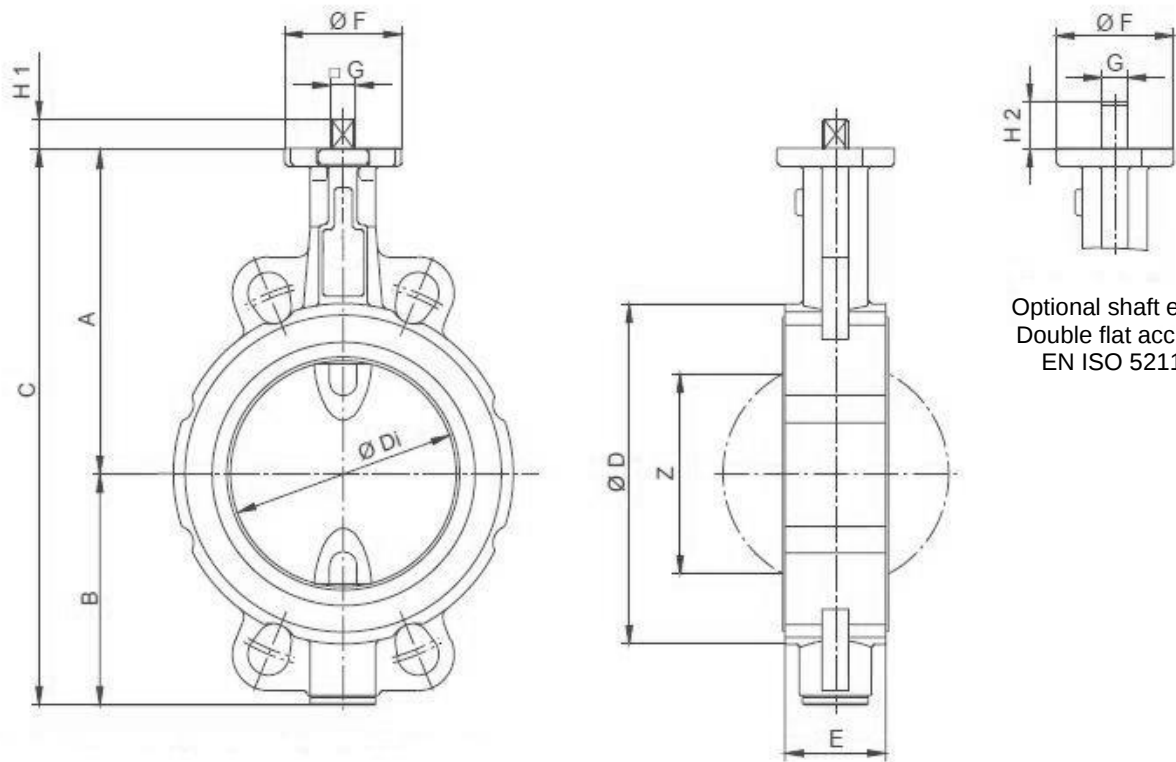
- Absolutely tight sealing with flow in either direction
- The valve body and disc are accurately machined which results in low operating torque and long service life and reliability
- Triple shaft bearings prevent shaft deflection and guarantee optimum guidance even after many years of operational service
- Four flange mounting holes ensure correct valve location when installing
- Single flange mounting is possible: DN 20-250: 3 bar  
DN 300-600: 2 bar
- Not possible with aluminum housing
- Can be installed in any desired position
- Maintenance-free
- Can be disassemble, material-specific recycling possible
- For paint and lacquers, a silicon-free version is available

**General Applications:**

- Chemical and petrochemical industries
- Water and waste water technology
- Pneumatic materials handling technology
- Shipbuilding
- Power generation industry
- Transport of hazardous materials (EN 14432)



Aluminium version. Available Sizes: DN 50 - DN 400



Optional shaft end:  
Double flat acc. to  
EN ISO 5211

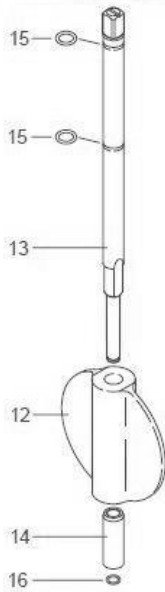
Z 011-A with bare shaft end according to EN ISO 5211

| DN<br>[mm] | Size<br>[in] | Dimensions[mm] |     |      |      |       |     |     |             |    |    |    |      | Weight<br>[kg]<br>(GG-25) |              |
|------------|--------------|----------------|-----|------|------|-------|-----|-----|-------------|----|----|----|------|---------------------------|--------------|
|            |              | A              | B   | C    | D    | Di    | E   | F   | Flange      | G  | H1 | H2 | Z    | 2 pc.<br>shaft            | TS-<br>shaft |
| 20         | 3/4          | 104            | 45  | 149  | 59   | 31,5  | 33  | 54  | F04         | 11 | 12 | 19 | -    | 1,3                       | -            |
| 25         | 1            | 104            | 45  | 149  | 63   | 31,5  | 33  | 54  | F04         | 11 | 12 | 19 | -    | 1,3                       | -            |
| 32         | 1 1/4        | 104            | 50  | 154  | 68   | 31,5  | 33  | 54  | F04         | 11 | 12 | 19 | -    | 1,4                       | -            |
| 40         | 1 1/2        | 113            | 66  | 179  | 80   | 38    | 33  | 54  | F04         | 11 | 12 | 19 | 22   | 1,8                       | -            |
| 50         | 2            | 126            | 84  | 210  | 95   | 48,5  | 43  | 54  | F04         | 11 | 12 | 19 | 25   | 2,2                       | -            |
| 65         | 2 1/2        | 134            | 93  | 227  | 115  | 63,5  | 46  | 54  | F04         | 11 | 12 | 19 | 45   | 2,9                       | -            |
| 80         | 3            | 157            | 104 | 261  | 138  | 78,5  | 46  | 65  | F05         | 14 | 16 | 25 | 65   | 4,0                       | 4,5          |
| 100        | 4            | 167            | 115 | 282  | 158  | 98,5  | 52  | 65  | F05         | 14 | 16 | 25 | 85   | 5,2                       | 53,8         |
| 125        | 5            | 180            | 127 | 307  | 188  | 123,5 | 56  | 65  | F05         | 14 | 16 | 25 | 111  | 6,9                       | 7,5          |
| 150        | 6            | 203            | 150 | 353  | 212  | 148   | 56  | 90  | F07         | 17 | 19 | 30 | 139  | 9,5                       | 11           |
| 200        | 8            | 228            | 176 | 404  | 268  | 199   | 60  | 90  | F07         | 17 | 19 | 30 | 190  | 13,2                      | 15           |
| 150        | 10           | 266            | 202 | 478  | 320  | 248   | 68  | 125 | F10         | 22 | 24 | 39 | 240  | 22,5                      | 25,5         |
| 300        | 12           | 291            | 237 | 528  | 370  | 296   | 78  | 125 | F10         | 22 | 24 | 39 | 287  | 31,5                      | 35           |
| 350        | 14           | 332            | 269 | 601  | 408  | 338   | 78  | 150 | F12         | *  | *  | -  | 330  | 39,4                      | 45           |
| 400        | 16           | 363            | 314 | 677  | 470  | 388   | 102 | 150 | F12         | *  | *  | -  | 378  | 58,7                      | 64,5         |
| 450        | 18           | 397            | 335 | 732  | 530  | 430,5 | 114 | 210 | F16         | *  | *  | -  | 417  | 91,0                      | 95,5         |
| 500        | 20           | 437            | 371 | 808  | 574  | 494,5 | 127 | 210 | F14/<br>F16 | *  | *  | -  | 474  | 107                       | 113,5        |
| 600        | 24           | 498            | 469 | 967  | 675  | 590   | 154 | 300 | F16/<br>F25 | *  | *  | -  | 563  | 171                       | 198          |
| 700        | 28           | 581            | 507 | 1088 | 772  | 680   | 165 | 300 | F16/<br>F25 | *  | *  | -  | 660  | 251                       | 304          |
| 800        | 32           | 630            | 556 | 1186 | 874  | 780   | 190 | 300 | F25         | *  | *  | -  | 757  | 355                       | 375          |
| 900        | 36           | 696            | 617 | 1313 | 973  | 880   | 203 | 300 | F25         | *  | *  | -  | 860  | 456                       | 498          |
| 1000       | 40           | 771            | 675 | 1446 | 1070 | 980   | 216 | 350 | F30         | *  | *  | -  | 956  | 570                       | 718          |
| 1200       | 48           | 880            | 810 | 1690 | 1510 | 1170  | 254 | 350 | F30         | *  | *  | -  | 1154 | -                         | 1156         |

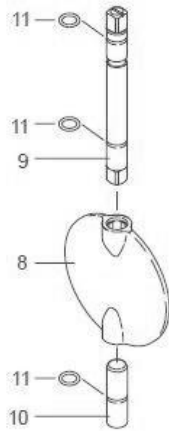
\* According to mounted actuator

Subject to change without notice.

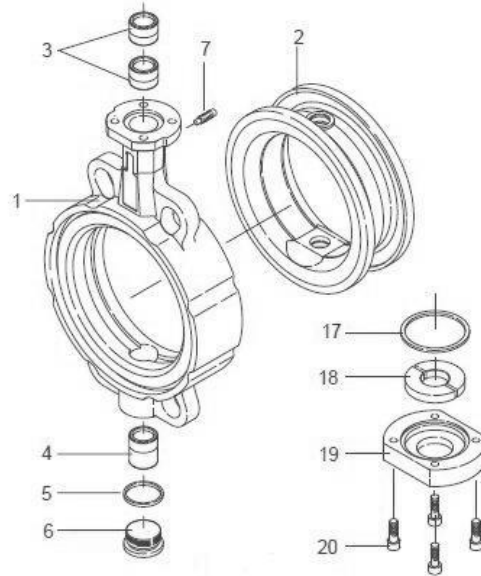
## Material specification and part list:



TS-Version



Version with splitted shaft



Pts. 17-20:  
Cover plate for valve ≥ DN 350

| Pt.             | Description            | Material                                | Mat.-No.  | ASTM            | Pt.                          | Description                      | Material                 | Mat.-No. | ASTM      |
|-----------------|------------------------|-----------------------------------------|-----------|-----------------|------------------------------|----------------------------------|--------------------------|----------|-----------|
| 1               | Body                   |                                         |           |                 | 9/10                         | Shafts                           |                          |          |           |
|                 | Aluminiumalloy         | G-AISI9Cu3                              | 3.2163    | B380.1Stainless |                              | Stainless Steel                  | X39CrMo17-1              | 1.4122   | -         |
|                 |                        | G-AISI10Mg                              | 3.2381    | 361.1           |                              |                                  | X14CrMoS17               | 1.4104   | 430 F     |
|                 | Grey Cast Iron         | GG-25                                   | 0.6025    | 40 B            |                              |                                  | X5CrNiMo 17-12-2         | 1.4401   | 316       |
|                 | Nodular Cast Iron      | GGG-40                                  | 0.7040    | 60-40-18        |                              |                                  | Hastelloy                | 2.4883   | Hastelloy |
|                 |                        | GGG-40.3                                | 0.7043    | -               | Aluminum Bronze              | CuAl10Ni                         | 2.0975                   | -        |           |
|                 | Carbon Steel           | GS-C25                                  | 1.0619    | WCB             | 11                           | O-Ring                           |                          |          |           |
| Stainless Steel | G-X5CrNi Mo19-11-2     | 1.4408                                  | CF8M      | NBR             |                              | Nitrile butadiene rubber         |                          |          |           |
| 2               | Seat                   |                                         |           |                 | 12                           | Fluorocarbon rubber              |                          |          |           |
|                 | NBR                    | Nitrile butadiene rubber                |           |                 |                              | TS-disc                          |                          |          |           |
|                 | EPDM                   | Ethylene propylene diene monomer rubber |           |                 | Nodular Cast Iron            | GGG-40                           | 0.7040                   | 60-40-18 |           |
|                 | CSM                    | Chlorosulfonated polyethylene rubber    |           |                 | Stainless Steel              | G-X5CrNiMo19-11-2                | 1.4408                   | CF8M     |           |
|                 | FPM                    | Fluorocarbon rubber                     |           |                 | Aluminium Bronze             | G-CuAl10Ni                       | 2.0975                   | C 95800  |           |
|                 | VSI                    | Silicone rubber                         |           |                 | Coating                      | Halar,Rilsan                     |                          |          |           |
|                 | SBR-green              | Styrene butadiene rubber                |           |                 | Surface quality              | electropolished, mirror finished |                          |          |           |
| 3/4             | Bearing bush           |                                         |           |                 | 13                           | TS-shaft                         |                          |          |           |
|                 | Brass                  | MS 58                                   | 2,0401    | B 45            |                              | Stainless Steel                  | X14CrMoS17               | 1.4104   | 430 F     |
|                 | Polyamide              | PA 66                                   |           | X39CrMo17-1     |                              |                                  | 1.4122                   | -        |           |
| PTFE            | Polytetrafluorethylene |                                         |           | X5CrNiMo17-12-2 |                              |                                  | 1.4401                   | 316      |           |
| 5               | Seal DIN 7603          |                                         |           |                 | 14                           | Aluminum Bronze                  | CuAl10Ni                 | 2.0975   | -         |
|                 | Kupfer                 | Cu                                      | -         | Copper          |                              | Sleeve                           |                          |          |           |
| 6               | Plug screw DIN 908     |                                         |           |                 |                              | Stainless Steel                  | X5CrNi18-10              | 1.4301   | 304       |
|                 | Stainless Steel        | G-X5CrNi Mo19-11-2                      | 1.4408    | CF8M            | 15                           | O-Ring                           |                          |          |           |
| 7               | Set screw DIN 915      |                                         |           |                 |                              | NBR                              | Nitrile butadiene rubber |          |           |
|                 | Steel                  | 45 H galvanized                         |           |                 |                              | FPM                              | Fluorocarbon rubber      |          |           |
| 8               | Stainless Steel        | A4-70                                   |           | B8M             | 16                           | Retaining ring                   |                          |          |           |
|                 | Disc                   |                                         |           |                 |                              | Stainless Steel                  | X39CrMo17-1              | 1.4122   | -         |
|                 | Steel                  | St 52.3                                 | 1.0570    | 572-50          | 17                           | O-Ring                           |                          |          |           |
|                 | Stainless Steel        | G-X5CrNi Mo19-11-2                      | 1.4301    | 304             |                              | NBR                              | Nitrile butadiene rubber |          |           |
|                 |                        | G-X6CrNi Mo18-10                        | 1.4408    | CF8M            | Shaft retainer               |                                  |                          |          |           |
|                 |                        | X2CrNiMo17-12-2                         | 1.4404    | 316 L           | Brass                        | MS 58                            | 2.0401                   | B 45     |           |
|                 |                        | X6CrNiMoTi17-12-2                       | 1.4571    | 316 Ti          | Cover plate                  |                                  |                          |          |           |
|                 |                        | G-X2CrNiMoN26-7-4                       | 1.4469    | F 51            | Grey Cast Iron               | GG-25                            | 0.6025                   | 40 B     |           |
|                 | Hastelloy              | 2.4883                                  | Hastelloy | 20              | Screw                        |                                  |                          |          |           |
|                 | Aluminium Bronze       | G-CuAl10Ni                              | 2.0975    |                 | C 95800                      | Steel                            | 45 H galvanized          |          |           |
|                 | Coating                | Halar, Rilsan, NBR, EPDM                |           |                 | Stainless Steel              | A2-70                            | -                        | B8       |           |
|                 | Surface quality        | electropolished, mirror finished        |           |                 |                              | A4-70                            | -                        | B8M      |           |
|                 |                        |                                         |           |                 | Other materials upon request |                                  |                          |          |           |

Subject to change without notice.

| Torque                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DN<br>[mm] | Size<br>[in] | Adapted disc size pressure rating |            |             |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|-----------------------------------|------------|-------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |              | 3 bar disc                        | 6 bar disc | 10 bar disc | 16 bar disc |
| <ul style="list-style-type: none"> <li>- The values listed in the table are initial breakaway torques, taken with liquids and lubricant media.</li> <li>- Please regard these as approximate values, as the objective value depends on different factors like pressure, medium, rubber, quality, temperature etc.</li> <li>- Our engineers look forward to help you with exact values for your application</li> <li>- Powdery (non-lubricant) media<br/>Md x 1,3</li> <li>- Dry gasses / high viscous media<br/>Md x 1,2</li> </ul> | 20         | 3/4          | 2                                 | 5          | 5           | -           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 25         | 1            | 2                                 | 5          | 5           | -           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 32         | 1 1/4        | 2                                 | 5          | 5           | -           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 40         | 1 1/2        | 5                                 | 8          | 8           | 8           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 50         | 2            | 6                                 | 9          | 9           | 9           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 65         | 2 1/2        | 18                                | 18         | 18          | 18          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 80         | 3            | 8                                 | 10         | 18          | 24          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 100        | 4            | 9                                 | 18         | 28          | 37          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 125        | 5            | 15                                | 22         | 45          | 59          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 150        | 6            | 36                                | 45         | 78          | 125         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200        | 8            | 59                                | 76         | 140         | 200         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 250        | 10           | 150                               | 180        | 200         | 240         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 300        | 12           | 200                               | 240        | 280         | 360         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 350        | 14           | 350                               | 540        | 610         | 700         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 400        | 16           | 420                               | 620        | 750         | 850         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 450        | 18           | 720                               | 746        | 860         | 1500        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 500        | 20           | 900                               | 1100       | 2255        | 3690        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 600        | 24           | 1050                              | 2100       | 3000        | 5830        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 700        | 28           | 1560                              | 2240       | 3450        | 8100        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 800        | 32           | 2070                              | 3800       | 6600        | 11200       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 900        | 36           | 2700                              | 4900       | 7100        | 14500       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1000       | 40           | 4600                              | 6780       | 11500       | 24400       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1200       | 48           | 7800                              | 12000      | 21000       | 44000       |

All values in NM

| K <sub>v</sub> -Values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DN<br>[mm] | Size<br>[in] | Opening angle α° |      |       |       |       |       |       |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|------------------|------|-------|-------|-------|-------|-------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |              | 20°              | 30°  | 40°   | 50°   | 60°   | 70°   | 80°   | 90°    |
| <ul style="list-style-type: none"><li>- The Kv-values [m³ per hour] is the flow of water at a temperature of 5°C to 30°C (41°F to 86°F) at Δp of 1 bar.</li><li>- The K<sub>v</sub>-values specified are based on test carried out by the Delfter Hydraulics Laboratories, the Netherlands.</li><li>- Permissible velocity of flow:<br/>Vmax 4,5 m/s for liquids,<br/>Vmax 70 m/s for gasses.</li><li>- The throttle function is linear at an angle 30° to 70°.</li><li>- Avoid cavitation.</li></ul> <p>For further values, please contact our engineers.</p> | 20         | 3/4          | -                | 1    | 4     | 8     | 11    | 19    | 27    | 32     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 25         | 1            | -                | 1,5  | 5     | 10    | 15    | 24    | 32    | 36     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 32         | 1 1/4        | -                | 1,5  | 5     | 11    | 16    | 27    | 35    | 40     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 40         | 1 1/2        | -                | 2,2  | 8     | 15    | 21    | 33    | 43    | 50     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 50         | 2            | 1,2              | 8    | 13    | 22    | 38    | 50    | 65    | 85     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 65         | 2 1/2        | 2                | 9    | 22    | 42    | 77    | 115   | 180   | 215    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 80         | 3            | 8                | 24   | 50    | 95    | 150   | 240   | 330   | 420    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 100        | 4            | 13               | 28   | 65    | 130   | 180   | 340   | 550   | 800    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 125        | 5            | 26               | 65   | 130   | 230   | 350   | 530   | 870   | 1010   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 150        | 6            | 35               | 90   | 200   | 360   | 640   | 900   | 1350  | 2100   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 200        | 8            | 43               | 180  | 350   | 580   | 1000  | 1600  | 3000  | 4000   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 250        | 10           | 125              | 360  | 660   | 1100  | 1800  | 3100  | 5300  | 6400   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 300        | 12           | 200              | 550  | 1000  | 1600  | 1600  | 5000  | 7500  | 8500   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 350        | 14           | 350              | 780  | 1400  | 2400  | 4000  | 8000  | 10800 | 11500  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 400        | 16           | 490              | 1050 | 1800  | 3100  | 5500  | 11000 | 1200  | 14500  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 450        | 18           | 510              | 1080 | 2040  | 3350  | 6100  | 11500 | 14600 | 20500  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 500        | 20           | 520              | 1100 | 2200  | 3500  | 6200  | 12000 | 15100 | 21000  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 600        | 24           | 750              | 1400 | 2800  | 5100  | 8800  | 14000 | 22000 | 29300  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 700        | 28           | 770              | 1755 | 3260  | 5980  | 10600 | 17100 | 25300 | 36000  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 800        | 32           | 1200             | 2260 | 4550  | 8230  | 12900 | 20300 | 29300 | 44600  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 900        | 36           | 1540             | 2280 | 6030  | 10500 | 17600 | 29200 | 42150 | 59000  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1000       | 40           | 2200             | 3970 | 8300  | 14480 | 24000 | 37100 | 60300 | 81500  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1200       | 48           | 5050             | 7900 | 13800 | 19700 | 33500 | 53300 | 73050 | 102650 |

Subject to change without notice.