

| PIPE                     |                                           |           |           | ELBOWS    |           | CAPS       | FLANGES   |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           | STANDAARD TEES |                                                          | CONSTRUCTIES |        |      |       | REDUCERS      |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------|-------------------------------------------|-----------|-----------|-----------|-----------|------------|-----------|------------------------------------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------------------|------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|----------------|----------------------------------------------------------|--------------|--------|------|-------|---------------|------------|------|-----------|---------------------|----------|-----------|------------|-----------|------|-----|--------------------|--------|----|----|--------|---------|-------|-----|-----|---------------|--|--|--|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NOM. DIAM.               | Sched.                                    | O.D.      | I.D.      | 90° A     | 45° B     | S.R. 90° A | C         | 150 lbs                                              |          |           |           |           |           |           |           | 300 lbs                     |                                                                        |           |           |           |           |           |                | L                                                        | M            |        | N    |       | O             | NOM. DIAM. | P    | R         | NOM. DIAM.          | P        | R         |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1/2"                     | 80                                        | 21.3      | 13.87     | 38        | 16        | -          | 25        | 89                                                   | 48       | 11        | 16        | 60        | 4 1/2"    | 95        | 52        | 14                          | 22                                                                     | 67        | 4 1/2"    | 35        | 5         | 6         | 25             | 75                                                       | 79           | 88     | 82   | 66    | 3/4" x 1/2"   | 70         | -    | 10" x 6"  | 176                 | 52       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3/4"                     | 80                                        | 26.7      | 18.85     | 29        | 11        | -          | 25        | 98                                                   | 52       | 13        | 16        | 70        | 4 1/2"    | 118       | 57        | 16                          | 25                                                                     | 83        | 4 5/8"    | 43        | 5         | 6         | 29             | 83                                                       | 88           | 83     | 88   | 60    | 1" x 1/2"     | 90         | -    | 10" x 8"  | 176                 | 27       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1"                       | 80                                        | 33.4      | 24.31     | 38        | 22        | -          | 38        | 108                                                  | 56       | 14        | 18        | 79        | 4 1/2"    | 124       | 62        | 18                          | 27                                                                     | 89        | 4 5/8"    | 51        | 6         | 6         | 38             | 96                                                       | 102          | 96     | 102  | 78    | 1" x 3/4"     | 90         | -    | 12" x 8"  | 203                 | 52       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 1/2"                   | 80                                        | 48.3      | 38.1      | 57        | 29        | 38         | 38        | 127                                                  | 62       | 18        | 22        | 98        | 4 1/2"    | 156       | 68        | 21                          | 30                                                                     | 114       | 4 3/4"    | 73        | 6         | 8         | 57             | 121                                                      | 127          | 121    | 127  | 116   | 1 1/2" x 1/2" | 115        | -    | 12" x 10" | 203                 | 25       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2"                       | 40                                        | 60.3      | 52.5      | 76        | 35        | 51         | 38        | 152                                                  | 64       | 19        | 25        | 121       | 4 5/8"    | 165       | 70        | 22                          | 33                                                                     | 127       | 8 5/8"    | 92        | 8         | 8         | 63.5           | 129.5                                                    | 135.5        | 142    | 148  | 141.5 | 1 1/2" x 3/4" | 115        | -    | 14" x 10" | 330                 | 41       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3"                       | 40                                        | 88.9      | 77.93     | 114       | 51        | 76         | 51        | 191                                                  | 70       | 24        | 30        | 152       | 4 5/8"    | 210       | 79        | 29                          | 43                                                                     | 168       | 8 3/4"    | 127       | 8         | 9.5       | 86             | 158                                                      | 167          | 186    | 195  | 202   | 1 1/2" x 1"   | 63.5       | 7.5  | 14" x 12" | 330                 | 16       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4"                       | 40                                        | 114.3     | 102.26    | 152       | 64        | 102        | 64        | 229                                                  | 76       | 24        | 33        | 191       | 8 5/8"    | 254       | 86        | 32                          | 48                                                                     | 200       | 8 3/4"    | 157       | 9.5       | 9.5       | 105            | 183                                                      | 193          | 230    | 240  | 259   | 2" x 1"       | 76         | 13.5 | 16" x 12" | 356                 | 41       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6"                       | 40                                        | 168.3     | 154       | 229       | 95        | 152        | 89        | 279                                                  | 89       | 25        | 40        | 241       | 8 3/4"    | 318       | 98        | 37                          | 52                                                                     | 270       | 12 3/4"   | 216       | 12.5      | 16        | 143            | 234                                                      | 243          | 320    | 329  | 374   | 2" x 1 1/2"   | 76         | 6    | 16" x 14" | 356                 | 25       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8"                       | 30                                        | 219.1     | 205       | 305       | 127       | 203        | 102       | 343                                                  | 102      | 29        | 44        | 298       | 8 3/4"    | 381       | 111       | 41                          | 62                                                                     | 330       | 12 7/8"   | 270       | 12.5      | 19        | 178            | 282                                                      | 291          | 409    | 418  | 485   | 3" x 1 1/2"   | 89         | 20   | 18" x 14" | 381                 | 51       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10"                      | 30                                        | 273       | 257.4     | 381       | 159       | 254        | 127       | 406                                                  | 102      | 30        | 49        | 362       | 12 7/8"   | 445       | 118       | 48                          | 67                                                                     | 387       | 16 1"     | 324       | 16        | 22        | 216            | 320                                                      | 336          | 485    | 501  | 599   | 3" x 2"       | 89         | 14   | 18" x 16" | 381                 | 25       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12"                      | 30                                        | 323.8     | 307       | 457       | 191       | 305        | 152       | 483                                                  | 114      | 32        | 56        | 432       | 12 7/8"   | 521       | 130       | 51                          | 73                                                                     | 451       | 16 1 1/8" | 381       | 22        | 28        | 254            | 370                                                      | 386          | 573    | 589  | 713   | 4" x 2"       | 102        | 27   | 20" x 18" | 508                 | 25       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14"                      | 30                                        | 355.6     | 336.56    | 533       | 222       | 356        | 165       | 533                                                  | 127      | 35        | 57        | 476       | 12 1"     | 584       | 143       | 54                          | 76                                                                     | 514       | 20 1 1/8" | 413       | 22        | -         | 279            | 408                                                      | 424          | 662    | 678  | 814   | 4" x 3"       | 102        | 13   | 24" x 20" | 508                 | 51       |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16"                      | 30                                        | 406.4     | 387.35    | 610       | 254       | 406        | 178       | 597                                                  | 127      | 37        | 64        | 540       | 16 1"     | 648       | 146       | 57                          | 83                                                                     | 572       | 20 1 1/4" | 470       | 22        | -         | 305            | 434                                                      | 453          | 739    | 758  | 917   | 6" x 3"       | 140        | 40   |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18"                      | 20                                        | 457.2     | 441.4     | 686       | 286       | 457        | 203       | 635                                                  | 140      | 40        | 68        | 578       | 16 1 1/8" | 711       | 159       | 60                          | 89                                                                     | 629       | 24 1 1/4" | 533       | 25        | -         | 343            | 485                                                      | 504          | 828    | 847  | 1031  | 6" x 4"       | 140        | 27   |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20"                      | 20                                        | 508       | 489       | 762       | 318       | 508        | 229       | 699                                                  | 144      | 43        | 73        | 635       | 20 1 1/8" | 775       | 162       | 64                          | 95                                                                     | 686       | 24 1 1/4" | 584       | 25        | -         | 381            | 527                                                      | 545          | 908    | 926  | 1145  | 8" x 4"       | 152        | 52   |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24"                      | 20                                        | 609.6     | 590.6     | 914       | 381       | 610        | 267       | 813                                                  | 152      | 48        | 83        | 749       | 20 1 1/4" | 914       | 168       | 70                          | 106                                                                    | 813       | 24 1 1/2" | 692       | 32        | -         | 432            | 586                                                      | 602          | 1068   | 1084 | 1348  | 8" x 6"       | 152        | 25   |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NOM. DIAM.               | ISOLATIE DIKTE VOOR LEIDINGEN             |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             | ISOLATIE GEW. STEENWOL : 180 kg/m³ GLASWOL : 100 kg/m³ INCL. DEPLATING |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           | MACHINE BUIGSTRALEN |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     | REDUCING TEES |  |  |  | NIPOLETS |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DIAM.                    | FURNACE HEAT - EN LAGEDRUK STOOMLEIDINGEN |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             | STEAM HEAT - EN HOGEDRUK STOOMLEIDINGEN (≥ 18 kg/cm²)                  |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| °C                       | 70 - 100                                  | 100 - 150 | 150 - 200 | 200 - 250 | 250 - 300 | 300 - 350  | 350 - 400 | 400 - 450                                            | 70 - 100 | 100 - 150 | 150 - 200 | 200 - 250 | 250 - 300 | 300 - 350 | 350 - 400 | 400 - 450                   | 70 - 100                                                               | 100 - 150 | 150 - 200 | 200 - 250 | 250 - 300 | 300 - 350 | 350 - 400      | 400 - 450                                                | NOM. DIAM.   |        |      |       | L             |            |      |           | O                   | M        |           | NOM. DIAM. | V         | W    |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1/2"                     | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 1/2"   |      |       |               | 80         | 160  | 105       | 244                 | 160      | 285       | 220        | 320       | 320  | 125 | 3/4" x 3/4" x 1/2" | 29     | 69 | 79 | 83     | 1/2"    | 89    | 139 | 140 |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3/4"                     | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 3/4"   |      |       |               | 100        | 120  | 90        | 225                 | 145      | 280       | 205        | 330       | 320  | 160 | 1" x 1" x 1/2"     | 38     | 78 | 88 | 92     | 3/4"    | 89    | 143 | 148 |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1"                       | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 1"     |      |       |               | 130        | 120  | 95        | 256                 | 165      | 325       | 235        | 395       | 380  | 205 | 1" x 1" x 3/4"     | 38     | 69 | 92 | 97     | 1"      | 89    | 147 | 153 |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 1/2"                   | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 1 1/2" |      |       |               | 200        | 150  | 130       | 360                 | 225      | 465       | 330        | 570       | 560  | 315 |                    |        |    |    | 1 1/2" | 89      | 153   | 159 |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2"                       | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 2"     |      |       |               | 250        | 300  | 220       | 565                 | 360      | 695       | 510        | 825       | 800  | 395 |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3"                       | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 3"     |      |       |               | 350        | 300  | 245       | 666                 | 420      | 850       | 610        | 1035      | 1000 | 550 |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4"                       | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 4"     |      |       |               | 450        | 300  | 270       | 770                 | 480      | 1010      | 710        | 1240      | 1200 | 710 |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6"                       | 25                                        | 25        | 25        | 25        | 25        | 25         | 40        | 40                                                   | 25       | 25        | 25        | 25        | 25        | 25        | 25        | 40                          | 25                                                                     | 25        | 25        | 25        | 25        | 25        | 25             | 40                                                       | 40           | 6"     |      |       |               | 600        | 400  | 360       | 1030                | 640      | 1345      | 950        | 1660      | 1600 | 945 |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8"                       | 30                                        | 30        | 40        | 60        | 60        | 80         | 80        | 100                                                  | 40       | 40        | 60        | 60        | 80        | 80        | 100       | 100                         | 40                                                                     | 40        | 60        | 60        | 80        | 80        | 100            | 100                                                      | 100          | 100    | 8"   |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10"                      | 30                                        | 40        | 60        | 60        | 80        | 80         | 100       | 100                                                  | 40       | 60        | 60        | 80        | 80        | 100       | 100       | 120                         | 120                                                                    | 40        | 60        | 60        | 80        | 80        | 100            | 100                                                      | 120          | 120    | 10"  |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12"                      | 30                                        | 40        | 60        | 60        | 80        | 100        | 100       | 100                                                  | 40       | 60        | 60        | 80        | 100       | 100       | 120       | 120                         | 120                                                                    | 40        | 60        | 60        | 80        | 100       | 100            | 120                                                      | 120          | 120    | 12"  |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14"                      | 30                                        | 40        | 60        | 60        | 80        | 100        | 100       | 100                                                  | 40       | 60        | 60        | 80        | 100       | 100       | 120       | 120                         | 120                                                                    | 40        | 60        | 60        | 80        | 100       | 100            | 120                                                      | 120          | 120    | 14"  |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16"                      | 30                                        | 40        | 60        | 60        | 80        | 100        | 100       | 100                                                  | 40       | 60        | 60        | 80        | 100       | 100       | 120       | 120                         | 120                                                                    | 40        | 60        | 60        | 80        | 100       | 100            | 120                                                      | 120          | 120    | 16"  |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ISOLATIEDIKTEN VOOR :    |                                           |           |           |           |           |            |           | °C                                                   | 50 - 100 | 100 - 150 | 150 - 200 | 200 - 250 | 250 - 300 | 300 - 350 | 350 - 400 | 400 - 450                   | NOM. PIP. DIAM.                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           | 1/2" - 4"           | 6" - 8"  | 10" - 14" | 16"        | rev datum |      |     |                    | tek nr |    |    |        | R-60036 | IAob  |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TANKS, COLONNES EN VATEN |                                           |           |           |           |           |            |           | 30                                                   | 40       | 60        | 60        | 80        | 100       | 120       | 120       | TEGEN STOLLEN OF BEVRIEZEN  |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      | 1 x 1/2"  | 1 x 1/2"            | 1 x 3/4" | 2 x 3/4"  | A B C D    |           |      |     | STANDAARD          |        |    |    | rev    |         | CTAob |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WARMTE WISSELAARS        |                                           |           |           |           |           |            |           | 40                                                   | 40       | 60        | 60        | 80        | 100       | 100       |           | OM TEMPERATUUR TE HANDHAVEN |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      | 1 x 1/2"  | 1 x 3/4"            | 1 1/4"   | 3 x 3/4"  | 1976 1977  |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VLAKKE WANDEN            |                                           |           |           |           |           |            |           | 30                                                   | 30       | 60        | 60        | 80        | 100       | 100       | 120       |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HAND PROTECTION 25 mm    |                                           |           |           |           |           |            |           | VERMEDE ISOLATIE DIKTEN VLGS. DEP. 31.81.99.10.9 PER |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                | CONDENSOT 3/8" VOOR 1/2" TRACER EN 1/2" VOOR 3/4" TRACER |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                          |                                           |           |           |           |           |            |           |                                                      |          |           |           |           |           |           |           |                             |                                                                        |           |           |           |           |           |                |                                                          |              |        |      |       |               |            |      |           |                     |          |           |            |           |      |     |                    |        |    |    |        |         |       |     |     |               |  |  |  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |