

BILL OF TOTAL PIPING MATERIAL

Proj. No. K70101

Date 12.11.2004

Rev. 0

Bill of Material ; without supports and valves

| Pos | Object | DN | d1 | s1 | d2 | s2 | Material | Pipingclass | Standard | piece [piece/m] | weight [kg] | summ weight [kg] | single prize delivery | total prize delivery | single prize assembling | total prize assembling | total prize |
|-----|-----------------------|-----|-------|-----|----|----|----------|-------------|-----------------|--------------------|-------------|---------------------|--------------------------|-------------------------|----------------------------|---------------------------|-------------|
| 1 | Pipe, seamless | 15 | 21,3 | 1,6 | | | 1.4541 | ZB10C1C | DIN EN 1092-1 | 1,50 | 0,79 | 1,19 | | | | | |
| 2 | Pipe | 25 | 33,7 | 2,0 | | | 1.4541 | ZB25C1 | DIN EN 1092-1 | 1,50 | 1,58 | 2,37 | | | | | |
| 3 | Pipe, seamless | 25 | 33,7 | 2,6 | | | 1.0254 | AA40C1 | DIN EN 10220 | 1,30 | 1,99 | 2,59 | | | | | |
| 4 | Pipe, welded | 25 | 33,7 | 2,0 | | | Monel | | | 1,30 | 1,58 | 2,05 | | | | | |
| 5 | Pipe | 40 | 48,3 | 2,0 | | | 1.4541 | ZB40C1C | DIN EN 1092-1 | 4,00 | 2,31 | 9,24 | | | | | |
| 6 | Pipe | 50 | 60,3 | 2,0 | | | 1.4541 | ZB25C1 | DIN EN 1092-1 | 289,70 | 2,92 | 845,92 | | | | | |
| 7 | Pipe | 80 | 88,9 | 2,3 | | | 1.4541 | ZB25C1C | DIN EN 1092-1 | 143,20 | 4,98 | 713,14 | | | | | |
| 8 | Pipe | 100 | 114,3 | 2,6 | | | 1.4541 | ZB40C1C | DIN EN 1092-1 | 56,70 | 7,27 | 412,21 | | | | | |
| 9 | Pipe, seamless | 150 | 168,3 | 2,6 | | | 1.4541 | ZB10C1C | DIN EN 1092-1 | 6,10 | 10,80 | 65,88 | | | | | |
| 10 | Pipe, welded | 150 | 168,3 | 4,0 | | | 1.4541 | ZB40C1 | DIN EN ISO 1127 | 1,90 | 16,40 | 31,16 | | | | | |
| 11 | Pipe, welded | 200 | 219,1 | 6,3 | | | 1.0254 | AA40C1 | DIN EN 10220 | 5,60 | 33,10 | 185,36 | | | | | |
| 12 | Pipe, welded | 200 | 219,1 | 4,5 | | | 1.4541 | ZB40C1 | DIN EN ISO 1127 | 3,70 | 23,80 | 88,06 | | | | | |
| 13 | Pipe | 300 | 323,9 | 5,6 | | | 1.4541 | ZB25C1 | DIN EN ISO 1127 | 61,50 | 44,70 | 2.749,00 | | | | | |
| 14 | Pipe, seamless | | 12,0 | 1,0 | | | 1.4541 | | | 15,00 | 0,50 | 7,50 | | | | | |
| 15 | Pipe bend 90°, type 3 | 25 | 33,7 | 2,0 | | | 1.4541 | ZB25C1 | DIN 2605-1 | 3,00 | 0,09 | 27,00 | | | | | |
| 16 | Elbow 90°, 3D design | 25 | 33,7 | 2,6 | | | 1.0254 | AA40C1 | DIN 2605-1 | 1,00 | 0,12 | 0,12 | | | | | |
| 17 | Elbow 90°, 3D design | 25 | 33,7 | 2,0 | | | Monel | | DIN 2605-1 | 1,00 | 0,09 | 0,09 | | | | | |
| 18 | Pipe bend 90°, type 3 | 40 | 48,3 | 2,0 | | | 1.4541 | ZB40C1C | DIN 2605-1 | 4,00 | 0,21 | 0,84 | | | | | |
| 19 | Pipe bend 90°, type 3 | 50 | 60,3 | 2,0 | | | 1.4541 | ZB25C1 | DIN 2605-1 | 77,00 | 0,35 | 26,95 | | | | | |
| 20 | Pipe bend 90°, type 3 | 80 | 88,9 | 2,3 | | | 1.4541 | ZB25C1C | DIN 2605-1 | 49,00 | 0,89 | 43,61 | | | | | |
| 21 | Pipe bend 45°, type 3 | 80 | 88,9 | 2,3 | | | 1.4541 | ZB25C1C | DIN 2605-1 | 5,00 | 0,45 | 2,25 | | | | | |

| Pos | Object | DN | d1 | s1 | d2 | s2 | Material | Pipingclass | Standard | piece [piece/m] | weight [kg] | summ weight [kg] | single prize delivery | total prize delivery | single prize assembling | total prize assembling | total prize |
|-----|--------------------------|-----|-------|-----|----|----|----------|-------------|------------------|--------------------|-------------|---------------------|--------------------------|-------------------------|----------------------------|---------------------------|-------------|
| 22 | Elbow 30°, design 3D | 80 | 88,9 | 2,3 | | | 1.4541 | | DIN 2605-1 | 1,00 | 0,30 | 0,30 | | | | | |
| 23 | Pipe bend 90°, type 3 | 100 | 114,3 | 3,6 | | | 1.4541 | ZB40C1C | DIN 2605-1 | 5,00 | 2,60 | 13,00 | | | | | |
| 24 | Elbow 30°, 3D design | 100 | 114,3 | 2,6 | | | 1.4541 | | DIN 2605-1 | 5,00 | 0,80 | 4,00 | | | | | |
| 25 | Elbow 90°, design 3D | 150 | 168,3 | 2,6 | | | 1.4541 | ZB10C1C | DIN 2605-1 | 1,00 | 3,88 | 3,88 | | | | | |
| 26 | Elbow 30°, design 3D | 150 | 168,3 | 2,6 | | | 1.4541 | ZB10C1C | DIN 2605-1 | 1,00 | 1,75 | 1,75 | | | | | |
| 27 | Elbow 90°, 3D design | 150 | 168,3 | 4,0 | | | 1.4541 | ZB40C1 | DIN 2605-1 | 1,00 | 5,90 | 5,90 | | | | | |
| 28 | Elbow 90°, 3D design | 200 | 219,1 | 6,3 | | | 1.0254 | AA40C1 | DIN 2605-1 | 3,00 | 15,86 | 47,58 | | | | | |
| 29 | Elbow 90°, 3D design | 200 | 219,1 | 4,5 | | | 1.4541 | ZB40C1 | DIN 2605-1 | 4,00 | 11,40 | 45,60 | | | | | |
| 30 | Pipe bend 90°, type 3 | 300 | 323,9 | 5,6 | | | 1.4541 | ZB25C1 | DIN 2605-1 | 3,00 | 62,09 | 186,27 | | | | | |
| 31 | Pipe bend 90°, type 3 | 300 | 323,9 | 7,1 | | | 1.4541 | ZB40C1 | DIN 2605-1 | 5,00 | 68,54 | 342,70 | | | | | |
| 32 | Welding neck flange | 25 | | | | | 1.4541 | ZB10C1C | DIN EN 1092-1 | 4,00 | 1,00 | 4,00 | | | | | |
| 33 | Welding neck flange | 25 | | | | | 1.0254 | AA40C1 | DIN EN 1092-1 | 3,00 | 1,00 | 3,00 | | | | | |
| 34 | Welding neck flange | 25 | | | | | Monel | | | 3,00 | 21,00 | 63,00 | | | | | |
| 35 | Welding neck flange | 40 | | | | | 1.4541 | ZB10C1C | DIN EN 1092-1 | 1,00 | 2,00 | 2,00 | | | | | |
| 36 | Welding neck flange | 40 | | | | | 1.4541 | ZB40C1C | AL No. 50006 | 16,00 | 2,00 | 32,00 | | | | | |
| 37 | Welding neck flange | 50 | | | | | 1.4541 | ZB40C1C | DIN EN 1092-1 | 43,00 | 3,00 | 129,00 | | | | | |
| 38 | Welding neck flange | 50 | | | | | 1.4541 | ZB10C1C | DIN EN 1092-1 | 7,00 | 3,00 | 21,00 | | | | | |
| 39 | Welding neck flange | 65 | | | | | 1.4541 | ZB10C1C | AL No. 50030 | 12,00 | 3,50 | 42,00 | | | | | |
| 40 | Welding neck flange | 80 | | | | | 1.4541 | ZB40C1C | DIN EN 1092-1 | 48,00 | 5,00 | 240,00 | | | | | |
| 41 | Welding neck flange | 80 | | | | | 1.4541 | ZB10C1C | AL No. 50030 | 10,00 | 4,00 | 40,00 | | | | | |
| 42 | Welding neck flange | 100 | | | | | 1.4541 | ZB40C1C | DIN EN 1092 1 | 2,00 | 6,50 | 13,00 | | | | | |
| 43 | Welding neck flange | 100 | | | | | 1.4541 | ZB10C1C | AL No. 50030 | 18,00 | 4,50 | 81,00 | | | | | |
| 44 | Welding neck flange | 150 | | | | | 1.4541 | ZB40C1 | DIN EN 1092 1 | 1,00 | 11,50 | 11,50 | | | | | |
| 45 | Welding neck flange | 150 | | | | | 1.4541 | ZB10C1C | AL No. 50030 | 1,00 | 7,50 | 7,50 | | | | | |
| 46 | Welding neck flange | 200 | | | | | 1.4541 | ZB25C1 | DIN EN 1092 1 | 1,00 | 17,00 | 17,00 | | | | | |
| 47 | Welding neck flange | 200 | | | | | 1.0254 | AA40C1 | DIN EN 1092-1 | 1,00 | 21,00 | 21,00 | | | | | |
| 48 | Welding neck flange | 200 | | | | | 1.4541 | ZB40C1 | DIN EN 1092-1 | 3,00 | 21,00 | 63,00 | | | | | |

| Pos | Object | DN | d1 | s1 | d2 | s2 | Material | Pipingclass | Standard | piece [piece/m] | weight [kg] | summ weight [kg] | single prize delivery | total prize delivery | single prize assembling | total prize assembling | total prize |
|-----|-------------------------------|-----|------|-----|------|-----|----------|-------------------|--------------------|--------------------|-------------|---------------------|--------------------------|-------------------------|----------------------------|---------------------------|-------------|
| 49 | Welding neck flange | 300 | | | | | 1.4541 | ZB25C1 | DIN EN 1092 1 | 4,00 | 31,50 | 126,00 | | | | | |
| 50 | Welding neck flange | 300 | | | | | 1.4541 | ZB40C1 | DIN EN 1092 1 | 4,00 | 47,50 | 190,00 | | | | | |
| 51 | Hexagon head screw M16x70 | | | | | | A4-70 | ZB25C1C | DIN EN ISO 4014 | 632,00 | 0,14 | 88,48 | | | | | |
| 52 | Hexagon head screw M24x90 | | | | | | A4-70 | ZB25C1 | DIN EN ISO 4014 | 20,00 | 0,43 | 8,60 | | | | | |
| 53 | Hexagon head screw M27x100 | | | | | | A4-70 | ZB25C1 | DIN EN ISO 4014 | 152,00 | 0,60 | 91,20 | | | | | |
| 54 | Hexagon head screw M12x60 | | | | | | A4-70 | ZB25C1 | DIN EN ISO 4014 | 8,00 | 0,07 | 0,56 | | | | | |
| 55 | Hexagon head screw M20x80 | | | | | | A2-70 | ZB10C1C | AL No. 50030 | 16,00 | 0,26 | 4,16 | | | | | |
| 56 | Union nut M18x1,5 | | | | | | | supplied by AL | AL No. 54101 | 22,00 | | 0,00 | | | | | |
| 57 | Hexagon head screw M12x65 | | | | | | A2-70 | ZB40C1C | DIN EN ISO 4014 | 32,00 | 0,14 | 4,48 | | | | | |
| 58 | Hexagon head screw M16x60 | | | | | | A2-70 | ZB10C1C | DIN EN ISO 4014 | 36,00 | 0,14 | 5,04 | | | | | |
| 59 | Hexagon head screw M16x110 | | | | | | A2-70 | | | 12,00 | 0,20 | 2,40 | | | | | |
| 60 | Hexagon head screw M16x80 | | | | | | A2-70 | ZB40C1C | DIN EN ISO 4014 | 192,00 | 0,16 | 30,72 | | | | | |
| 61 | Hexagon head screw M16x160 | | | | | | A2-70 | ZB40C1C | DIN EN ISO 4014 | 16,00 | | 0,00 | | | | | |
| 62 | Hexagon head screw M16x150 | | | | | | A2-70 | | | 16,00 | | | | | | | |
| 63 | Stud bolt M27x 240 | | | | | | A2-70 | | | 12,00 | | 0,00 | | | | | |
| 64 | Hexagon nut M16 | | | | | | A4-70 | ZB40C1C | DIN EN ISO 4032 | 52,00 | | 0,00 | | | | | |
| 65 | Hexagon head nut M16 | | | | | | A2-70 | ZB10C1C | DIN EN ISO 4032 | 924,00 | 0,03 | 27,72 | | | | | |
| 66 | Hexagon nut M24 | | | | | | A2-70 | ZB25C1 | DIN EN ISO 4032 | 20,00 | 0,11 | 2,20 | | | | | |
| 67 | Hexagon head nut M27 | | | | | | A2-70 | ZB40C1 | DIN EN ISO 4032 | 176,00 | 0,17 | 29,92 | | | | | |
| 68 | Hexagon head nut M12 | | | | | | A2-70 | ZB40C1C | DIN EN ISO 4032 | 40,00 | 0,03 | 1,20 | | | | | |
| 69 | Hexagon head nut M20 | | | | | | A2-70 | ZB10C1C | AL No. 50030 | 32,00 | 0,06 | 1,92 | | | | | |
| 70 | Reducer | 50 | 60,3 | 2,0 | 48,3 | 2,0 | 1.4541 | ZB10C1C | DIN2616-1 | 8,00 | 0,20 | 1,60 | | | | | |
| 71 | Reducer | 80 | 88,9 | 2,3 | 60,3 | 2,0 | 1.4541 | ZB40C1C | DIN 2616-1 | 5,00 | 0,38 | 1,90 | | | | | |
| 72 | Reducer | 80 | 88,9 | 2,3 | 76,1 | 2,3 | 1.4541 | ZB10C1C | DIN 2616-1 | 7,00 | 0,42 | 2,94 | | | | | |
| 73 | Reducer | 80 | 88,9 | 2,3 | 48,3 | 2,0 | 1.4541 | ZB25C1C | DIN 2616-1 | 2,00 | 0,35 | 0,70 | | | | | |

| Pos | Object | DN | d1 | s1 | d2 | s2 | Material | Pipingclass | Standard | piece [piece/m] | weight [kg] | summ weight [kg] | single prize delivery | total prize delivery | single prize assembling | total prize assembling | total prize |
|-------|--------------|-----|-------|------|-------|-----|-----------------------------|-------------|------------------|--------------------|-------------|---------------------|--------------------------|-------------------------|----------------------------|---------------------------|-------------|
| 74 | Reducer | 100 | 114,3 | 2,6 | 60,3 | 2,0 | 1.4541 | ZB40C1C | DIN 2616-2 | 1,00 | 0,20 | 0,20 | | | | | |
| 75 | Reducer | 100 | 114,3 | 2,6 | 76,1 | 2,3 | 1.4541 | ZB10C1C | DIN 2616-1 | 4,00 | 0,61 | 2,44 | | | | | |
| 76 | Reducer | 100 | 114,3 | 2,6 | 88,9 | 2,3 | 1.4541 | ZB40C1C | DIN 2616-2 | 5,00 | 0,65 | 3,25 | | | | | |
| 77 | Reducer | 150 | 168,3 | 2,6 | 114,3 | 2,6 | 1.4541 | ZB10C1C | DIN 2616-2 | 1,00 | 1,26 | 1,26 | | | | | |
| 78 | Reducer | 150 | 168,3 | 2,6 | 88,9 | 2,3 | 1.4541 | ZB10C1C | DIN 2616-2 | 1,00 | 1,15 | 1,15 | | | | | |
| 79 | Reducer | 150 | 168,3 | 2,6 | 114,3 | 2,6 | 1.4541 | ZB10C1C | DIN 2616-2 | 1,00 | 1,26 | 1,26 | | | | | |
| 80 | Reducer | 200 | 219,1 | 4,5 | 168,3 | 4,0 | 1.4541 | ZB40C1 | DIN 2616-1 | 1,00 | 3,25 | 3,25 | | | | | |
| 81 | Reducer | 300 | 323,9 | 5,6 | 219,1 | 4,5 | 1.4541 | ZB25C1 | DIN 2616-1 | 1,00 | 7,58 | 7,58 | | | | | |
| 82 | Reducer | 300 | 323,9 | 10,0 | 168,3 | 7,1 | 1.4541 | ZB40C1 | DIN 2616-1 | 1,00 | 12,10 | 12,10 | | | | | |
| 83 | Tee | 50 | 60,3 | 2,0 | 60,3 | 2,0 | 1.4541 | ZB40C1C | DIN 2615-2 | 13,00 | 0,68 | 8,84 | | | | | |
| 84 | Tee | 80 | 88,9 | 2,3 | 88,9 | 2,3 | 1.4541 | ZB40C1C | DIN 2615-1 | 8,00 | 2,46 | 19,68 | | | | | |
| 85 | Tee | 80 | 88,9 | 3,2 | | | 1.4541 | ZB25C1C | DIN 2615-1 | 2,00 | 1,47 | 2,94 | | | | | |
| 86 | Tee, reduced | 80 | 88,9 | 2,3 | 60,3 | 2,0 | 1.4541 | ZB10C1C | AL No. 50030 | 1,00 | 0,99 | 0,99 | | | | | |
| 87 | Tee | 100 | 114,3 | 2,6 | 114,3 | 2,6 | 1.4541 | ZB40C1C | DIN 2615-2 | 8,00 | 4,41 | 35,28 | | | | | |
| 88 | Tee | 150 | 168,3 | 2,6 | 168,3 | 2,6 | 1.4541 | ZB10C1C | AL No. 50030 | 1,00 | 3,72 | 3,72 | | | | | |
| 89 | Tee, reduced | 200 | 219,1 | 4,5 | 168,3 | 4,0 | 1.4541 | ZB40C1 | DIN 2615-1 | 1,00 | 13,52 | 13,52 | | | | | |
| 90 | Gasket | 25 | 35,0 | 2,0 | 70,0 | | Graphit mit CrNi-Einlage | ZB25C1 | DIN EN 1514-1 | 10,00 | | 0,00 | | | | | |
| 91 | Gasket | 40 | 49,0 | 2,0 | 92,0 | | Graphit mit CrNi-Einlage | ZB40C1C | EN 1514-1 | 14,00 | | 0,00 | | | | | |
| 92 | Gasket | 50 | 61,0 | 2,0 | 107,0 | | Graphit mit CrNi-Einlage | ZB25C1 | EN1514-1 | 51,00 | | 0,00 | | | | | |
| 93 | Gasket | 65 | 127,0 | 2,0 | | | Graphit | ZB10C1C | AL No. 50030 | 11,00 | | 0,00 | | | | | |
| 94 | Gasket | 80 | 90,0 | 2,0 | 142,0 | | Graphit mit CrNi-Einlage | ZB25C1C | EN 1514-1 | 59,00 | | 0,00 | | | | | |
| 95 | Gasket | 100 | 115,0 | 2,0 | 168,0 | | Graphit mit CrNi-Einlage | ZB40C1C | EN 1514-1 | 21,00 | | 0,00 | | | | | |
| 96 | Gasket | 150 | 218,0 | 2,0 | | | Graphit | ZB10C1C | AL No. 50030 | 3,00 | | 0,00 | | | | | |
| 97 | Gasket | 200 | 292,0 | 2,0 | | | Graphit with CrNi-Inlay | AA40C1 | DIN EN 1514-1 | 4,00 | | 0,00 | | | | | |
| 98 | Gasket | 300 | | | | | Graphit mit CrNi-Einlage | ZB25C1 | EN 1514-1 | 8,00 | | 0,00 | | | | | |
| 99 | Washer | | | | | | A2-70 | | | 1.602,00 | | 7,400 | | | | | |
| TOTAL | | | | | | | | | | | | | | | | | |