

Calculations

**Elevator Hoist Capacity**

|                                  |                  |                     |
|----------------------------------|------------------|---------------------|
|                                  | New wall =       | 0.362               |
|                                  | Prem. Wall =     | 0.290               |
| Tool Joint OD= 3 3/4             | Tube OD =        | 2.875               |
| Elevator Bore Dia = 3 3/32       | Tube ID =        | 2.151               |
| Elevator Wear Factor= 1/32       | Tube Grade =     | 135000              |
| Elevator Contact Stress= 110,100 |                  |                     |
|                                  | With Wear Factor | With no Wear Factor |
| Line Pull=                       | 371,561          | 388,366             |

Note: Elevator hoist capacity is usually calculated at 65,000 psi contact stress. Wear rate increases w

|                                |                      |         |
|--------------------------------|----------------------|---------|
| Pipe Strength= 135,000         | <b>Pipe Strength</b> |         |
| Pipe OD= 2.875                 | New                  | 385,820 |
| Pipe Wall= 0.362               | Premium              | 299,764 |
| Pipe ID= 2.151                 |                      |         |
| Pipe OD Premium Class= 2.730   |                      |         |
| Pipe Wall Premium Class= 0.290 |                      |         |

Elevator hoist capacity for 2.875 pipe with 100,100 psi contact stress.

OD Increment 1/16

| Tool Joint OD (in) | Elevator Hoist Capacity (lb) |               | New Tube Ten. Capacity | Prem. Tube Ten. Capacity | Elev. Cap. @ 65% SMYS |         |
|--------------------|------------------------------|---------------|------------------------|--------------------------|-----------------------|---------|
|                    | No wear Factor               | W/wear Factor |                        |                          | No WF                 | w/WF    |
| 3 3/4              | 388,366                      | 371,561       | 385,820                | 299,764                  | 252,438               | 241,515 |
| 3 11/16            | 348,169                      | 331,365       | 385,820                | 299,764                  | 226,310               | 215,387 |
| 3 5/8              | 308,649                      | 291,844       | 385,820                | 299,764                  | 200,622               | 189,699 |
| 3 9/16             | 269,804                      | 252,999       | 385,820                | 299,764                  | 175,372               | 164,449 |
| 3 1/2              | 231,634                      | 214,830       | 385,820                | 299,764                  | 150,562               | 139,639 |
| 3 7/16             | 194,141                      | 177,336       | 385,820                | 299,764                  | 126,191               | 115,268 |
| 3 3/8              | 157,322                      | 140,518       | 385,820                | 299,764                  | 102,259               | 91,336  |
| 3 5/16             | 121,179                      | 104,375       | 385,820                | 299,764                  | 78,767                | 67,844  |
| 3 1/4              | 85,712                       | 68,908        | 385,820                | 299,764                  | 55,713                | 44,790  |
| 3 3/16             | 50,921                       | 34,116        | 385,820                | 299,764                  | 33,098                | 22,175  |
| 3 1/8              | 16,805                       | 0             | 385,820                | 299,764                  | 10,923                | 0       |