## TABLE 9. COEFFICIENTS OF TRANSMISSION (*U*) FOR PIPES INSULATED WITH 85 PER CENT MAGNESIA TYPE INSULATION

*These coefficients are expressed in Btu per hour per square foot of pipe surface per degree Fahrenheit difference in temperature between pipe and surrounding still air at 70 F*

| Thickness of Insulation (Inches) | Nominal Pipe Size (Inches) | Hot Water | | | | Steam | | |
|---|---|---|---|---|---|---|---|---|
| | | 120 F | 150 F | 180 F | 210 F | 227.1 F (5 Lb) | 297.7 F (50 Lb) | 337.9 F (100 Lb) |
| | | Temperature Difference | | | | | | |
| | | 50 F | 80 F | 110 F | 140 F | 157.1 F | 227.7 F | 267.9 F |
| 1 | ½ | 0.744 | 0.754 | 0.764 | 0.774 | 0.779 | 0.802 | 0.814 |
| | ¾ | 0.672 | 0.681 | 0.689 | 0.697 | 0.701 | 0.721 | 0.731 |
| | 1 | 0.613 | 0.621 | 0.629 | 0.637 | 0.641 | 0.659 | 0.670 |
| | 1¼ | 0.562 | 0.570 | 0.577 | 0.585 | 0.589 | 0.606 | 0.617 |
| | 1½ | 0.532 | 0.539 | 0.546 | 0.553 | 0.557 | 0.573 | 0.582 |
| | 2 | 0.500 | 0.506 | 0.512 | 0.519 | 0.523 | 0.538 | 0.547 |
| | 2½ | 0.475 | 0.481 | 0.487 | 0.493 | 0.497 | 0.512 | 0.520 |
| | 3 | 0.455 | 0.461 | 0.467 | 0.474 | 0.477 | 0.492 | 0.500 |
| | 3½ | 0.441 | 0.447 | 0.452 | 0.458 | 0.462 | 0.475 | 0.483 |
| | 4 | 0.429 | 0.435 | 0.441 | 0.446 | 0.449 | 0.463 | 0.471 |
| | 4½ | 0.420 | 0.425 | 0.431 | 0.437 | 0.440 | 0.453 | 0.460 |
| | 5 | 0.411 | 0.416 | 0.422 | 0.427 | 0.430 | 0.443 | 0.450 |
| | 6 | 0.402 | 0.408 | 0.413 | 0.419 | 0.422 | 0.435 | 0.442 |
| | 8 | 0.387 | 0.392 | 0.397 | 0.403 | 0.405 | 0.418 | 0.425 |
| | 10 | 0.375 | 0.380 | 0.385 | 0.390 | 0.393 | 0.405 | 0.412 |
| | 12 | 0.369 | 0.374 | 0.378 | 0.383 | 0.386 | 0.398 | 0.405 |
| 1½ | ½ | 0.617 | 0.625 | 0.633 | 0.642 | 0.646 | 0.665 | 0.676 |
| | ¾ | 0.550 | 0.558 | 0.566 | 0.573 | 0.577 | 0.596 | 0.606 |
| | 1 | 0.496 | 0.503 | 0.511 | 0.518 | 0.522 | 0.540 | 0.549 |
| | 1¼ | 0.453 | 0.459 | 0.465 | 0.472 | 0.475 | 0.490 | 0.498 |
| | 1½ | 0.424 | 0.430 | 0.436 | 0.442 | 0.445 | 0.459 | 0.467 |
| | 2 | 0.394 | 0.400 | 0.405 | 0.410 | 0.413 | 0.427 | 0.434 |
| | 2½ | 0.371 | 0.376 | 0.382 | 0.386 | 0.389 | 0.401 | 0.408 |
| | 3 | 0.352 | 0.357 | 0.362 | 0.367 | 0.370 | 0.380 | 0.387 |
| | 3½ | 0.339 | 0.343 | 0.347 | 0.351 | 0.354 | 0.364 | 0.370 |
| | 4 | 0.328 | 0.333 | 0.337 | 0.341 | 0.343 | 0.353 | 0.359 |
| | 4½ | 0.320 | 0.324 | 0.328 | 0.332 | 0.334 | 0.343 | 0.350 |
| | 5 | 0.312 | 0.316 | 0.320 | 0.324 | 0.326 | 0.336 | 0.342 |
| | 6 | 0.303 | 0.307 | 0.311 | 0.315 | 0.318 | 0.328 | 0.333 |
| | 8 | 0.287 | 0.291 | 0.295 | 0.299 | 0.301 | 0.311 | 0.316 |
| | 10 | 0.276 | 0.280 | 0.284 | 0.288 | 0.290 | 0.299 | 0.304 |
| | 12 | 0.272 | 0.275 | 0.279 | 0.283 | 0.285 | 0.294 | 0.299 |
| 2 | ½ | 0.543 | 0.551 | 0.558 | 0.565 | 0.569 | 0.587 | 0.597 |
| | ¾ | 0.484 | 0.490 | 0.497 | 0.503 | 0.507 | 0.523 | 0.532 |
| | 1 | 0.433 | 0.439 | 0.445 | 0.451 | 0.454 | 0.467 | 0.476 |
| | 1¼ | 0.393 | 0.398 | 0.403 | 0.409 | 0.412 | 0.424 | 0.432 |
| | 1½ | 0.365 | 0.370 | 0.376 | 0.381 | 0.384 | 0.397 | 0.402 |
| | 2 | 0.338 | 0.343 | 0.347 | 0.351 | 0.354 | 0.364 | 0.370 |
| | 2½ | 0.316 | 0.320 | 0.324 | 0.328 | 0.331 | 0.341 | 0.347 |
| | 3 | 0.297 | 0.301 | 0.305 | 0.309 | 0.312 | 0.321 | 0.326 |
| | 3½ | 0.284 | 0.288 | 0.292 | 0.295 | 0.297 | 0.306 | 0.311 |
| | 4 | 0.275 | 0.278 | 0.282 | 0.285 | 0.287 | 0.296 | 0.301 |
| | 4½ | 0.266 | 0.270 | 0.273 | 0.276 | 0.278 | 0.286 | 0.290 |
| | 5 | 0.258 | 0.262 | 0.265 | 0.268 | 0.270 | 0.278 | 0.283 |
| | 6 | 0.250 | 0.254 | 0.257 | 0.260 | 0.262 | 0.270 | 0.274 |
| | 8 | 0.236 | 0.239 | 0.242 | 0.245 | 0.247 | 0.255 | 0.258 |
| | 10 | 0.224 | 0.227 | 0.230 | 0.233 | 0.235 | 0.242 | 0.246 |
| | 12 | 0.219 | 0.222 | 0.225 | 0.228 | 0.230 | 0.237 | 0.240 |





## TABLE 10. COEFFICIENTS OF TRANSMISSION (*U*) FOR PIPES INSULATED WITH CORRUGATED ASBESTOS TYPE INSULATION (4 PLIES PER INCH THICKNESS)

*These coefficients are expressed in Btu per hour per square foot of pipe surface per degree Fahrenheit difference in temperature between pipe and surrounding still air at 70 F*

| Thickness of Insulation (Inches) | Nominal Pipe Size (Inches) | Hot Water | | | | Steam | | |
|---|---|---|---|---|---|---|---|---|
| | | 120 F | 150 F | 180 F | 210 F | 227.1 F (5 Lb) | 297.7 F (50 Lb) | 337.9 F (100 Lb) |
| | | Temperature Difference | | | | | | |
| | | 50 F | 80 F | 110 F | 140 F | 157.1 F | 227.7 F | 267.9 F |
| 1 | ½ | 0.890 | 0.919 | 0.949 | 0.978 | 0.995 | 1.065 | 1.106 |
| | ¾ | 0.803 | 0.829 | 0.857 | 0.883 | 0.898 | 0.961 | 0.997 |
| | 1 | 0.731 | 0.756 | 0.780 | 0.804 | 0.818 | 0.876 | 0.909 |
| | 1¼ | 0.671 | 0.693 | 0.716 | 0.738 | 0.751 | 0.804 | 0.834 |
| | 1½ | 0.635 | 0.656 | 0.677 | 0.698 | 0.710 | 0.760 | 0.788 |
| | 2 | 0.595 | 0.615 | 0.635 | 0.656 | 0.667 | 0.715 | 0.742 |
| | 2½ | 0.567 | 0.586 | 0.605 | 0.624 | 0.635 | 0.680 | 0.705 |
| | 3 | 0.544 | 0.562 | 0.580 | 0.598 | 0.608 | 0.652 | 0.677 |
| | 3½ | 0.527 | 0.544 | 0.561 | 0.578 | 0.588 | 0.631 | 0.654 |
| | 4 | 0.513 | 0.530 | 0.548 | 0.565 | 0.575 | 0.616 | 0.639 |
| | 4½ | 0.502 | 0.518 | 0.535 | 0.551 | 0.561 | 0.601 | 0.624 |
| | 5 | 0.490 | 0.507 | 0.523 | 0.539 | 0.549 | 0.588 | 0.611 |
| | 6 | 0.480 | 0.496 | 0.512 | 0.528 | 0.538 | 0.577 | 0.599 |
| | 8 | 0.462 | 0.477 | 0.493 | 0.508 | 0.517 | 0.554 | 0.575 |
| | 10 | 0.447 | 0.462 | 0.476 | 0.491 | 0.500 | 0.537 | 0.557 |
| | 12 | 0.441 | 0.456 | 0.470 | 0.485 | 0.493 | 0.529 | 0.550 |
| 1½ | ½ | 0.737 | 0.762 | 0.787 | 0.812 | 0.826 | 0.884 | 0.918 |
| | ¾ | 0.657 | 0.679 | 0.702 | 0.725 | 0.737 | 0.790 | 0.820 |
| | 1 | 0.594 | 0.614 | 0.634 | 0.654 | 0.666 | 0.713 | 0.740 |
| | 1¼ | 0.542 | 0.559 | 0.577 | 0.596 | 0.606 | 0.649 | 0.673 |
| | 1½ | 0.507 | 0.524 | 0.541 | 0.558 | 0.568 | 0.609 | 0.632 |
| | 2 | 0.471 | 0.487 | 0.503 | 0.519 | 0.528 | 0.565 | 0.587 |
| | 2½ | 0.443 | 0.458 | 0.473 | 0.488 | 0.497 | 0.533 | 0.553 |
| | 3 | 0.421 | 0.435 | 0.449 | 0.463 | 0.472 | 0.506 | 0.525 |
| | 3½ | 0.403 | 0.417 | 0.430 | 0.443 | 0.451 | 0.483 | 0.502 |
| | 4 | 0.393 | 0.405 | 0.418 | 0.432 | 0.439 | 0.471 | 0.489 |
| | 4½ | 0.383 | 0.394 | 0.407 | 0.420 | 0.428 | 0.460 | 0.476 |
| | 5 | 0.372 | 0.384 | 0.397 | 0.409 | 0.417 | 0.447 | 0.463 |
| | 6 | 0.362 | 0.374 | 0.387 | 0.399 | 0.406 | 0.436 | 0.452 |
| | 8 | 0.343 | 0.354 | 0.366 | 0.378 | 0.385 | 0.413 | 0.429 |
| | 10 | 0.328 | 0.339 | 0.351 | 0.362 | 0.369 | 0.397 | 0.413 |
| | 12 | 0.323 | 0.334 | 0.346 | 0.357 | 0.364 | 0.391 | 0.407 |
| 2 | ½ | 0.648 | 0.670 | 0.692 | 0.713 | 0.726 | 0.779 | 0.810 |
| | ¾ | 0.578 | 0.598 | 0.617 | 0.637 | 0.648 | 0.694 | 0.720 |
| | 1 | 0.518 | 0.535 | 0.552 | 0.570 | 0.580 | 0.622 | 0.645 |
| | 1¼ | 0.469 | 0.485 | 0.501 | 0.517 | 0.527 | 0.566 | 0.587 |
| | 1½ | 0.438 | 0.452 | 0.467 | 0.481 | 0.490 | 0.526 | 0.545 |
| | 2 | 0.404 | 0.417 | 0.430 | 0.444 | 0.452 | 0.483 | 0.502 |
| | 2½ | 0.379 | 0.391 | 0.403 | 0.415 | 0.422 | 0.451 | 0.466 |
| | 3 | 0.356 | 0.367 | 0.378 | 0.390 | 0.397 | 0.425 | 0.440 |
| | 3½ | 0.339 | 0.350 | 0.361 | 0.373 | 0.380 | 0.406 | 0.421 |
| | 4 | 0.328 | 0.339 | 0.350 | 0.360 | 0.367 | 0.392 | 0.406 |
| | 4½ | 0.318 | 0.328 | 0.339 | 0.350 | 0.357 | 0.381 | 0.395 |
| | 5 | 0.308 | 0.318 | 0.329 | 0.340 | 0.346 | 0.370 | 0.384 |
| | 6 | 0.299 | 0.309 | 0.319 | 0.329 | 0.335 | 0.358 | 0.371 |
| | 8 | 0.282 | 0.291 | 0.301 | 0.310 | 0.315 | 0.336 | 0.349 |
| | 10 | 0.267 | 0.276 | 0.285 | 0.294 | 0.299 | 0.319 | 0.332 |
| | 12 | 0.263 | 0.272 | 0.280 | 0.289 | 0.294 | 0.314 | 0.325 |