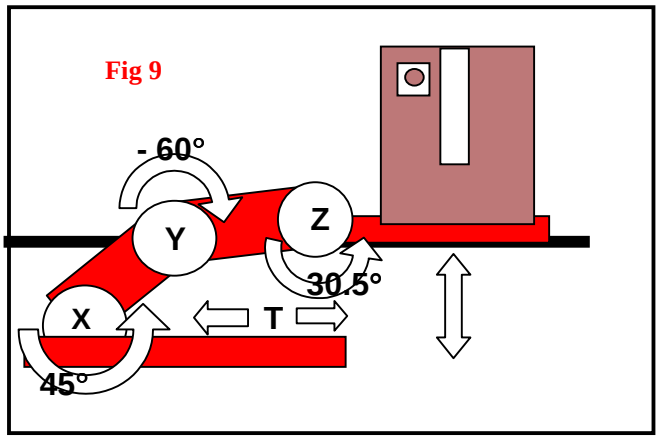
Application Example

➢ Working in inches, feet, millimeters, degrees

Figure 9 suggests **working in inches, feet, millimeters, degrees** rather than motor steps. The User Units command (UU) greatly simplifies programming and conversion tasks. Consider the job of this automated warehouse, package place and retrieval gantry. The part attached to rails on the floor moves back and forth in units of inches. The arms of the gantry are commanded in degrees of rotation. All we need know is the number of motor steps required to move one unit. If a motor takes 2000 steps to rotate 360 degrees then the ratio is 5.55555 **:** 1.

If the motor moving the gantry horizontally along the floor track moves 1 inch in 2000 steps its ratio is 2000 **:** 1. Once an OMS motion controller has been given the ratios the application programmer may command the gantry in familiar easy to understand terms.



AT UU2000;	* A linear motor, T, moves at 2000 steps per inch along the floor
AX UU5.55555;	* Motor on X axis requires 2000 steps to rotate 360 degrees
AY UU5.55555;	* Motor on Y axis requires 2000 steps to rotate 360 degrees
AZ UU5.55555;	* Motor on Z axis requires 2000 steps to rotate 360 degrees
AA	* The following commands pertain to all axes
AC50,50,50,6.5;	* Accelerate X,Y,Z 50 deg/sec/sec, and T at 6.5 inches/sec/sec
VL15,15,15,10;	* At speed move X,Y,Z 15 deg/sec and T 10 inches/sec
CN	* Accelerate all axes using a Cosine "S" curve for smoothest motion
MA,,,144.5; GO	* Advance the gantry (motor on T axis) from 0 to the 12.5 foot point
ML45,-60,30.5; GO	* Perform a coordinated linear motion on 3 axes simultaneously
	* Note that X,Y,Z have been addressed in degrees

The application program controlling this automated warehouse may query an OMS controller at any time for the current position or velocity of any axes. A home command (HM) may be issued to each axis to assure machine alignment at startup or after slip detection. Moves may be instructed to interrupt the running application when the destination has been reached, thus freeing the host processor for other jobs. The commands shown above work equally well with stepper or servo motors whether they transport grams, gallons or tons.