Chapter 7: Strain hardening & Annealing **→**° Cold working Hot working Frank-Read Source :pinned segment Each time a new loop is forming * Colic Working :-Rolling Forging Extrusion Stamping Wire drawing 1 T ED-THE E S The 0

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Annealing (Hot working) pailin Stages :annealing heat treaten -> Recovery : low - Temp Recrystallization: med - ~ Grain growth morement boundries by diffusion of oprain X 1 Cres Ch. 630

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The effect of cold work on the mechanical properties of copper - As the cold work 1, the yield and tensile strength I and Ductility b 5 atem The metal breaks if more cold work is attempted, Jensile Strength yield strength Erongation 5 5 5 7 7 ---Percent colet work 3 ------Slide 20: During plastic deformation -Using cold or hot working, a microstructure 3 of grains that are elongated in the direction of the applied stress is often 3 12 2 Produced 2-1 2-1 2 (2)

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Œ y the Ralling direction is not right a crack will form Ralling Director Manual State of the gradel come of prilidou (P' donate of alignette alignette Characteristics of cold Working :-House we can strengthen the metalic material and produced the desired , final shape obtain dimensional tolevances and surfac finishes (e small parts still cheaply (6-. Some métals can't handle cald (010 Working without breaking lafter a BB and aretain point) primation of done cald working does not affect conductivity when strengthening the concluctor durection of the applied stress is offer Loopaloarg. 1-2

Difference Bebween Fast and Slow Ced - (1) Arenojth Tusien Fusien Fusien For the cone Fusien lan_ 5 5 Distance 5 5 5 The slow cool process causes the loss of Strength of the material 5-1 7 -----in welding metals are heated to a temp higher than critical temp and so --3 mechanical properties are reduced 3 catastrophically by the heat of the Welding process. 2 -> Characteretics of Hot Working 2 2 1- lack of strengthening 2 2- Elimination of imporfections 2----3- Anishopic Behavior 4_ Surface finish and Dimensional Accuracy 2

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