

CASE STUDY 93

(PILGERING OF STAINLESS STEEL SEAMLESS TUBE)



CUSTOMER DETAILS :

A renowned name in manufacturing of Stainless Steel seamless tubes for oil & Gas, petrochemicals, heat exchangers, cryogenics, etc.



OBJECTIVES FOR CONDUCTING THE TRIAL

1. To suggest the right product whose viscosity should remain in range during usage, hence to increase sump life
2. To achieve desired die life & mandrel life without affecting tube performance

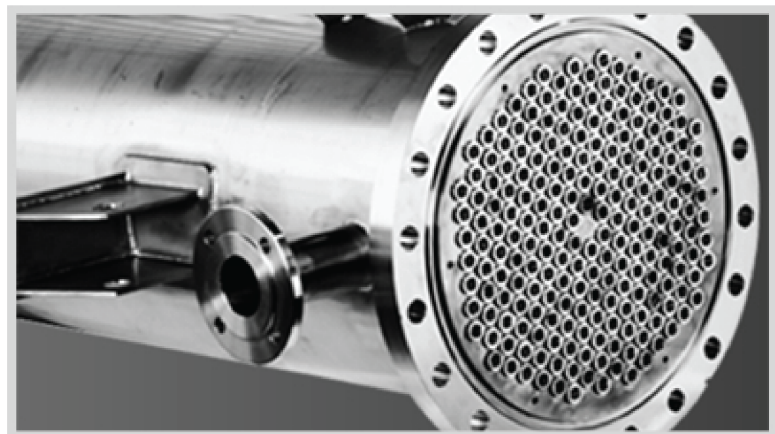


OPERATING / APPLICATION DETAILS:

1. Die Material: H 13 (52 HRC)
2. Mandrel Material: H 11 (48 HRC)
3. Hollow Tube material grades : SS 316, SS 304 and duplex
4. Dimensions of Tubes (Thickness * Length * Dia):
(2mm – 8 mm) * (5 – 10 mtrs) * (42-48mm)
5. Input to output dia reduction: Input dia 42.16 (min) & 42.8/48 max produces dia of 15.87 mm, 19.05 and 25.4 respectively
6. Thickness reduction: 1.2 mm -- 1.65 mm
7. Machine Make: Gelsion make indian, Russian and Chinese
8. Operation steps: Tube hollow ---> Pusher (mandrel) ---> cold rolling
Degreasing with cleaner --> annealing ---> Pickling----> Rust protection
9. Strokes: 10 to 300 strokes/min ---> depending upon RPM ---> Depending upon reduction required
10. Lubricant application: Spraying on roller dies
11. Tank capacity (Ltrs): 1500 ltrs Min
12. Fresh Oil viscosity: 270-300 cst
7. Flash point: 190-200 Deg C
8. Filtration: Mesh Filters of 1 mm
9. Output running meters: 600 to 800 mtrs for 12 hrs and (6 mtr hollow tube to 25 mtrs hollow tube output)
10. Feed (mm): Depending upon reduction required. (1 mm to 4 mm)
11. Mandrel cost (Rs): 5000-7000
12. Roller Die Cost: 1 Lakh to 2 Lakhs for 1 set which has 2 rolls
13. Die Life: 45,000 mtrs maximum
14. Sump life: 1 year minimum
15. Reason for changing the sump: Oil viscosity goes high more than 1000 to 2500 cst. It becomes difficult to operate the machine as same oil is used for lubrication. Die life also gets affected. Consumption also goes high.
16. Top up: 1 pilger of 1500 Ltrs sump consumes approx. 1.5 barrel/month



COMPONENT VIEW



PRODUCT RECOMMENDED: HIFORM 81N

TRIAL RESULTS

- (a) Its been 4 months, we are regularly checking samples and found viscosity is near to 280- 290 cst @ 40 Deg C and no increasing trend is observed yet
- (b) Die life and surface finish is upto the mark.
- (c) We were able to convert 4 more customer based on this customer reference.