



## Astrup MDS AISI 4145

**AISI 4145**

KVALITET, MANGFOLD OG GODT SAMARBEID

| Material Description  | Quality                                  |
|---|--|
| Round forged bars & premachined condition. Drilled bars machined and ends plugged for protection.<br>Tol bored bars OD +2/ -0 ID+0,5mm<br>Tol bars OD +2-0mm,<br>Straightness 1:500 or better | AISI 4145 Mod Q+T / 110 KSI<br>ASTM A751 |

| Chemical Composition |      |      |      |       |       |      |      |      |      |      |       |
|----------------------|------|------|------|-------|-------|------|------|------|------|------|-------|
|                      | C    | Si   | Mn   | P     | S     | Ni   | Cr   | Mo   | Cu   | V    | AL    |
| Min                  | 0,45 | 0,15 | 0,85 |       |       |      | 0,90 | 0,25 |      |      | 0,015 |
| Max                  | 0,48 | 0,30 | 1,20 | 0,025 | 0,025 | 0,30 | 1,20 | 0,35 | 0,30 | 0,05 | 0,035 |

| Mechanical properties to ASTM 370 method E8, E23 and E10 or E18 |         |        |              |         |         |                |               |                |                       |              |
|---|---------|--------|--------------|---------|---------|----------------|---------------|----------------|-----------------------|--------------|
|   | Deep    | Direct | YS 0,2 % ksi | TS ksi  | Elong % | Red. of Area % | Impact Joules | Share reported | Lateral exp. reported | Hardness HBW |
| <8"   | mid rad |        | 120-140      | 140-165 | 14,5    | 45             |               | x              | x                     |              |
|   |         |        |              |         |         |                |               | x              | x                     | 286-341      |
| <8"   | 1"      |        | 120-140      | 140-165 | 14,5    | 45             |               | x              | x                     |              |
|   |         |        |              |         |         |                |               | x              | x                     | 286-341      |
| >8"   | mid rad |        | 110-140      | 135-160 | 13      | 40             |               | x              | x                     |              |
|   |         |        |              |         |         |                |               | x              | x                     | 286-341      |
| >8"   | 1"      |        | 120-140      | 140-160 | 13      | 40             |               | x              | x                     |              |
|   |         |        |              |         |         |                |               | x              | x                     | 286-341      |

| Technical requirements   | Misc.  |
|--|--|
| Ultrasonic testing acc to ASTM A388 API 6A PSL3.<br>Hardness min 286-341 HB / 30-36 HRC.<br>ASTM A370.<br>Charpy V 3 x test at +20 C° min 40J.<br>Charpy V 3 x test at -10, -46, -32 C° inf.<br>Attested forged ratio, Heat treatment diagram. | Dia above 12" use properties in >8" at 1" below (mid rad not reported)<br>NS1 test for hardness for size from X to X reported<br>Austenitise: Soak temp time and cooling method reported ( Liquid ) 1 Hour<br>Temper : Soak temp time and cooling method reported (Air Cool ) 1 Hour. Hot work ratio: After agreement / above 12" report on order confirmation for approval by Astrup. |

| Certificate  |
|--|
| Acc to EN 10204/3.1  |
| Form of supply   |
| Lengths from 4-6 meter. Drilled bars to be end plugged for rustprotection.                               |
| Marking  |
| Astrup purchase number, each bar to be hard stamped with carge number, marked with quality and dimension |