

TCV operational plan

Available number of Shots #31

Calendar Week 24 (12.06-16.06)

L-Mode Experiment. Ip scan, DN, Low density

1. Shape from 57088, $I_p = 245$ kA, Reverse Bt, density ramp from Line Average Density = $3.8e19$ @ 0.5 s to $11e19$ @ 1.6s, Bt = 1.43T. Plunge @ 0.65, 1.52
2. Repeat #1 with $I_p=330$ kA Bt=1.43T, same density ramp, same timing for plunges
3. Repeat #1 with $I_p=180$ kA, Bt=1.43T, same density ramp, same timing for plunges
4. Repeat #1 with $q_{95}=2.44$ as #2, adjust Bt consequently (Bt = 1.06T)
5. Repeat #3 with $q_{95}=2.44$ as #2, adjust Bt consequently (Bt=0.78T)
6. Shape and current from #1. Stop puffing once the divertor is formed to get low collisionality case. Include an ECRH power ramp from 0.9s (150 kW) till the end (500 kW)
7. Repeat #6 with density at intermediate level from #1 @0.65s and #6
8. Repeat density ramp of Shot #2 in DN configuration (Equilibrium from #53516 @ 1.55)
9. Repeat density ramp of Shot #3 in DN configuration
10. Repeat #1 in forward field
11. Repeat #3 in forward field

Calendar Week 43-44 (23.10-03.11)

L-Mode

Completion of the L-Mode programme including a low collisionality case (#1), a current scan in DN configuration (#2, #3), a current scan in forward field (#4, #5) and a case without detachment/shoulder where N seeding is added in order to increase even further the collisionality (#6). The model number indicated refers to the shot number prepared by PdJ B. Labit

1. Low collisionality case (prepared PdJ model 116425). Exact repetition of 57425 up to 0.6s after that line integrated density is reduced to 0.8 fringes
2. PdJ Model 116516 (based on 53516). $I_p = 190$ kA DND configuration from 0.65s, density ramp as 57437
3. PdJ Model 116517. I_p 330 kA DN density ramp as 57497
4. Model 116437. I_p 190 kA repeat the density ramp of 57437 in forward field
5. Model 116497. I_p 330 kA repeat the density ramp of shot 57497 in forward field
6. Repeat Shot 57497 $I_p=330$ kA, Bt=1.43T with the same density ramp. Add N seeding in feed forward copying settings from shot 52147
7. Contingency

H-Mode

The target plasma is an high density H-Mode plasma where we reach detachment of the outer divertor. Ideally we would like to reach density up to the **Degraded H-Mode**. The strategy is moving from the best scenario obtained on Topic-24, Topic-06 and Topic-18 and play with density/power.

1. H-Mode plasma. Try to reproduce shot 55860. Shape needs to be adjusted with SP on the floor. Plunges @ 0.5 and 1 s
2. Repeat point #8 with different plunges @0.7 1.15
3. Repeat point #8 add N seeding. Use seeding from half of the value of # 57822. Monitor target temperature evolution
4. Repeat #1 adjust seeding accordingly.
5. Repeat 58366 with NBH power ramp from 1s associated with the feed-forward gas fueling. Power from (200kW, 1s) to (800 kW, 1.4s). Adjust vertical position ($z=5$ cm)
6. Repeat #5 eventually adjusting power/density ramp. If additional power is needed use ECRH central heating. If #5 successful then change stroking time
7. Repeat #5, reducing feed-forward gas while keeping best option for power ramp from #12-#13. Add N seeding and monitor target temperature
8. Repeat #7 adjusting dosing rate and change stroking time
9. Contingency
10. Contingency
11. Contingency