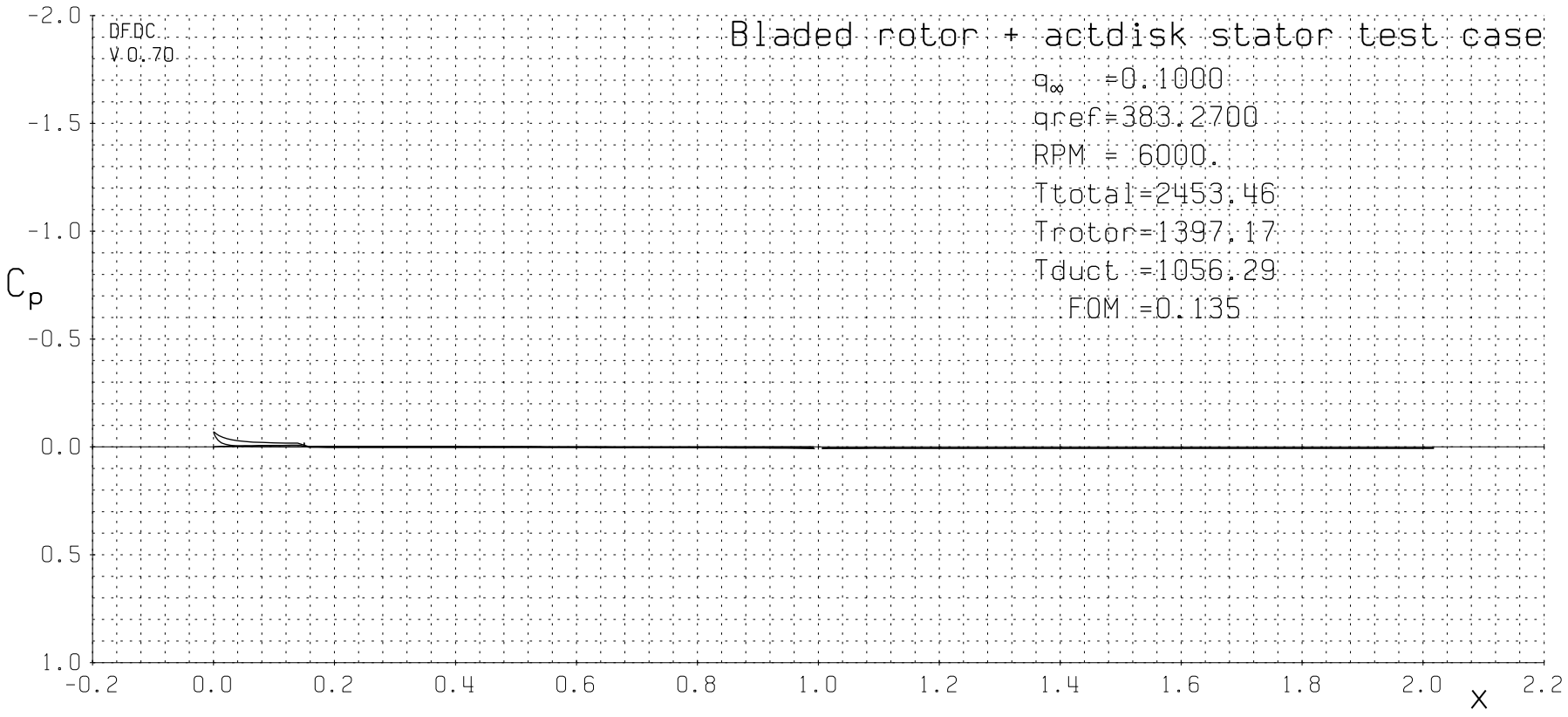
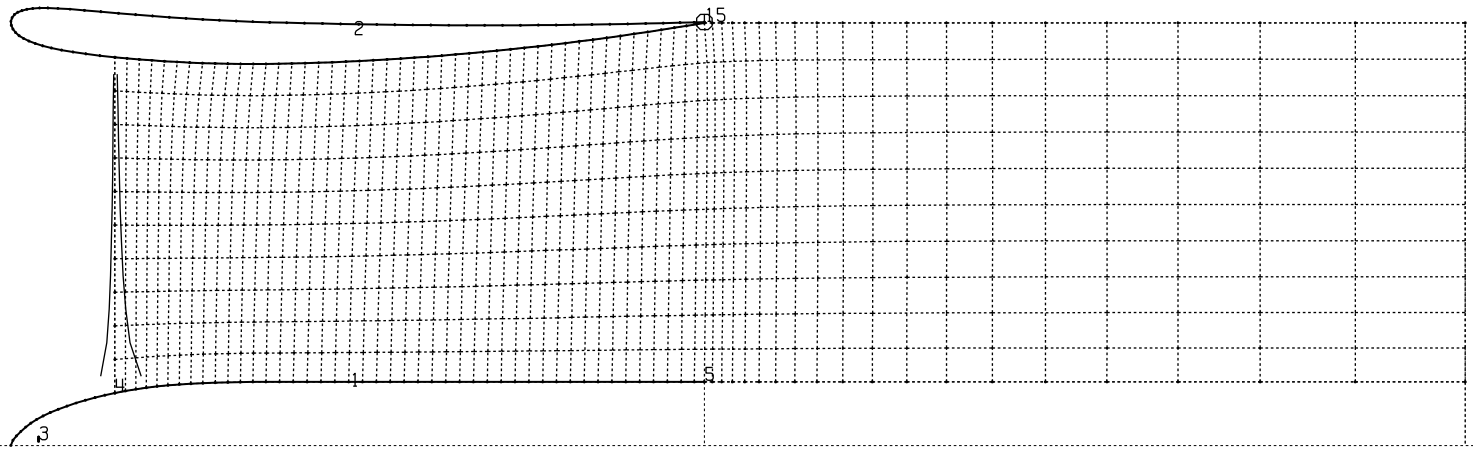
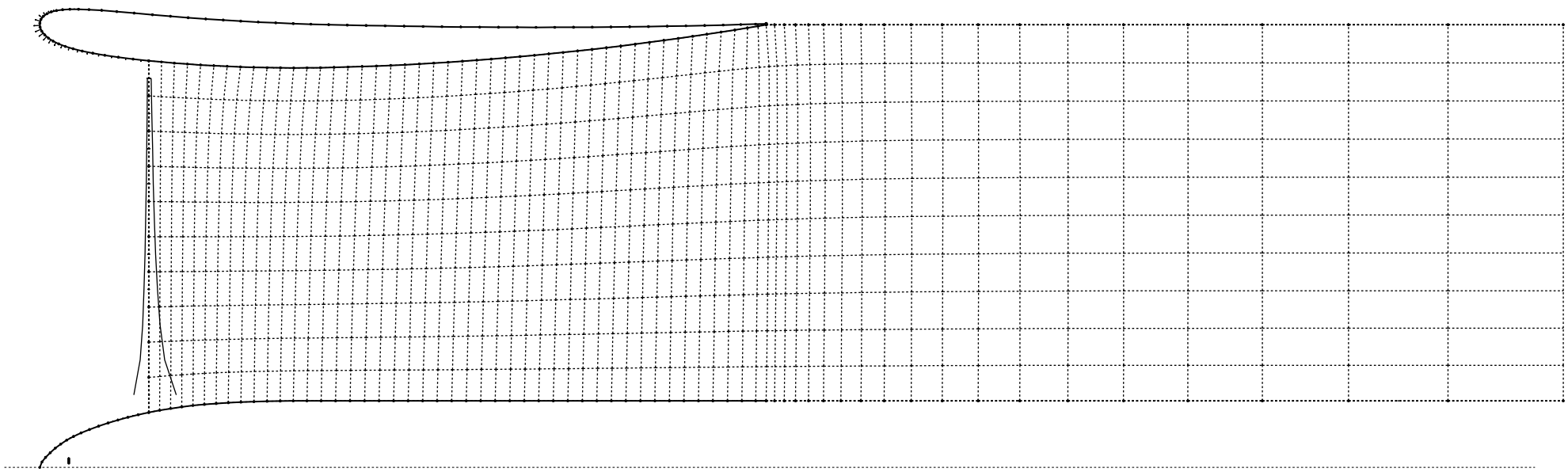
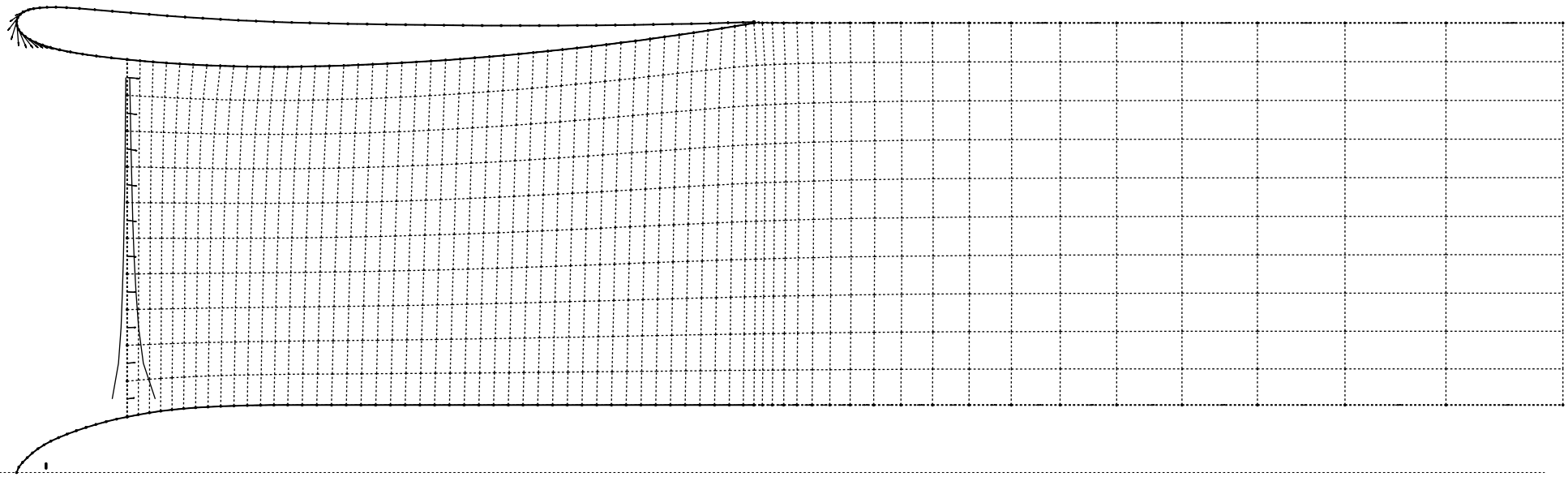

DFDC
V 0.70
Bladed rotor + actdisk stator test case
q∞ =0.1000
qref=383.2700
RPM = 6000.
Ttotal=2453.46
Trotor=1397.17
Tduct =1056.29
FOM =0.135
Cp
X
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
-0.2
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2

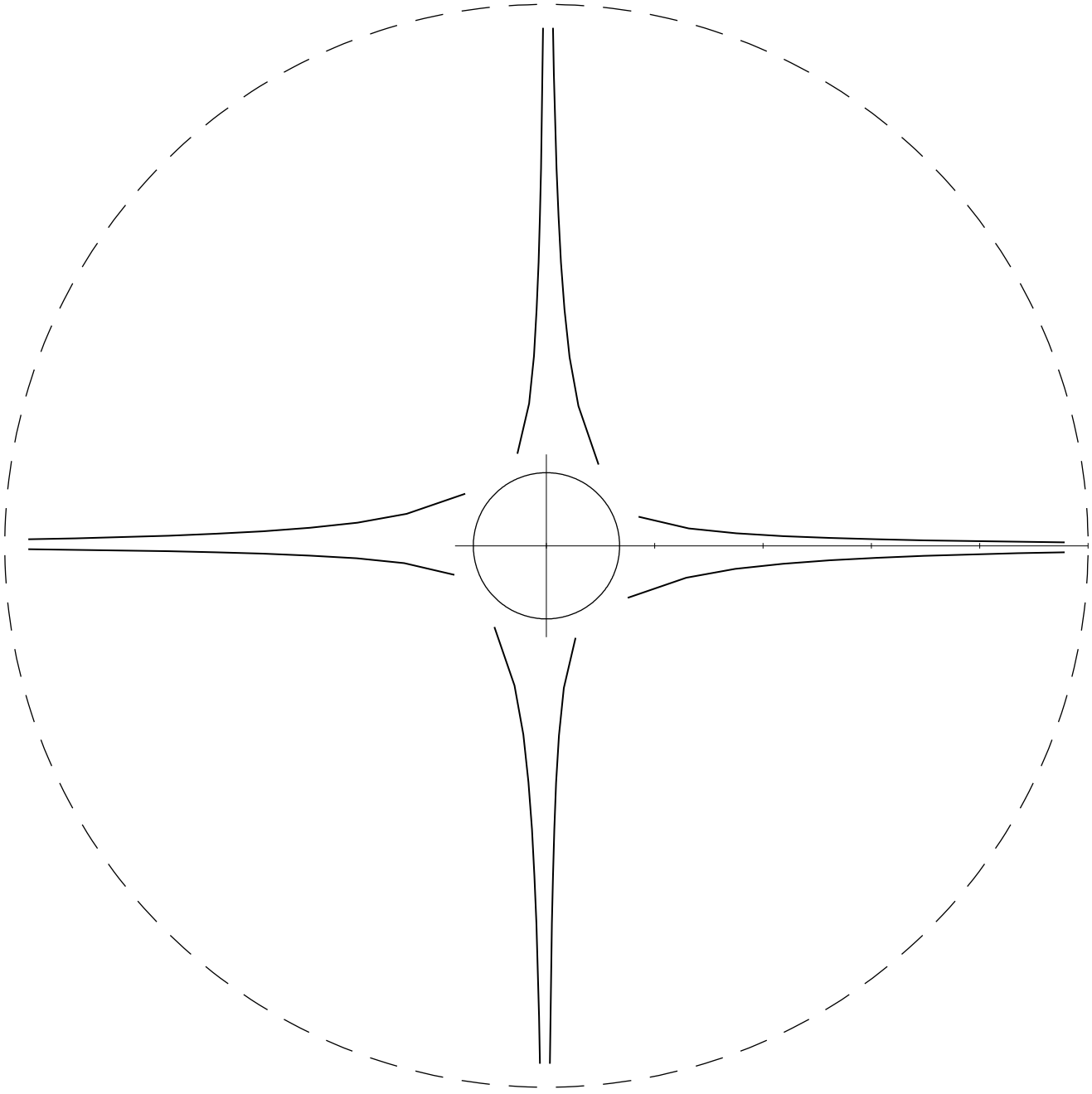

2
15
1
4
5
3



$C_p = 1$



$Q/Q_{ref} = 1$



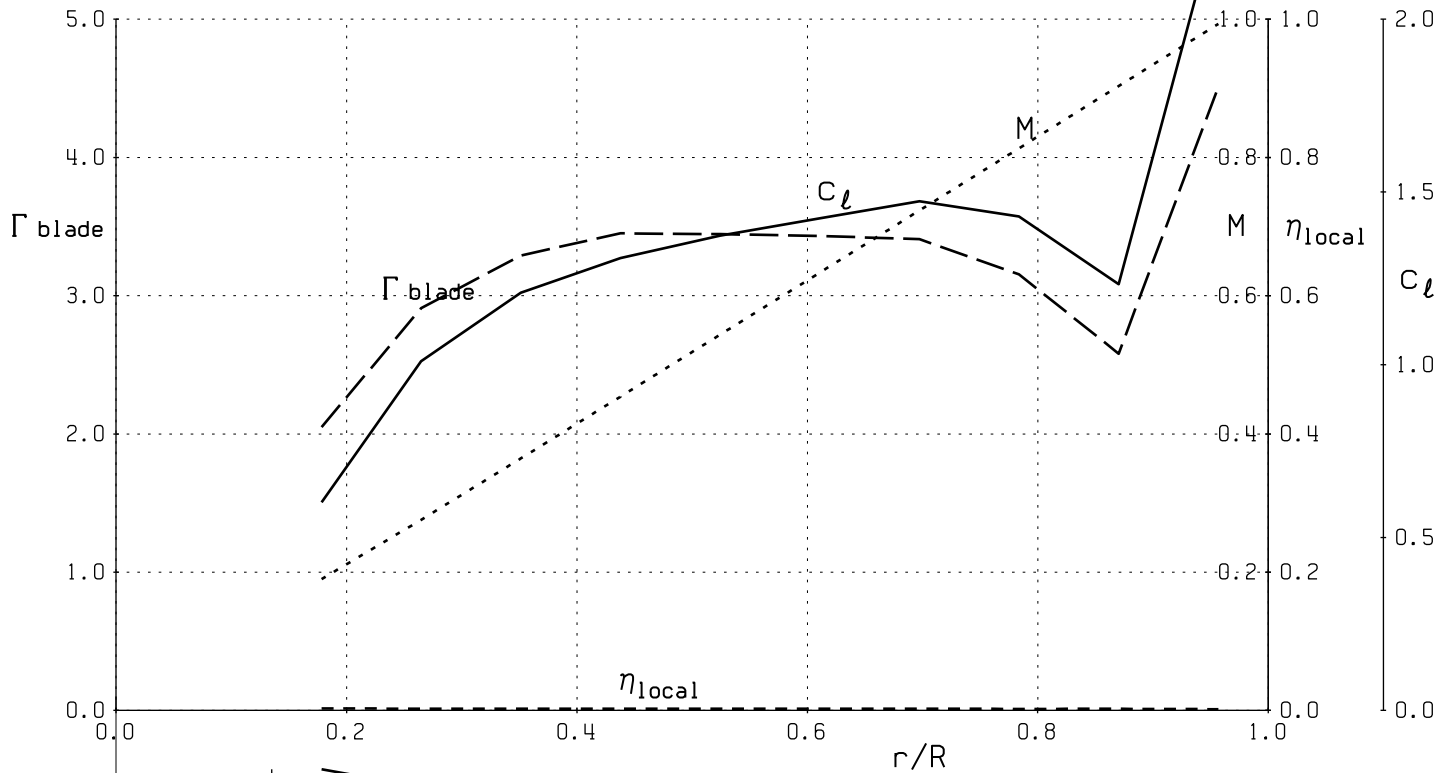
Bladed rotor + actdisk stator test case

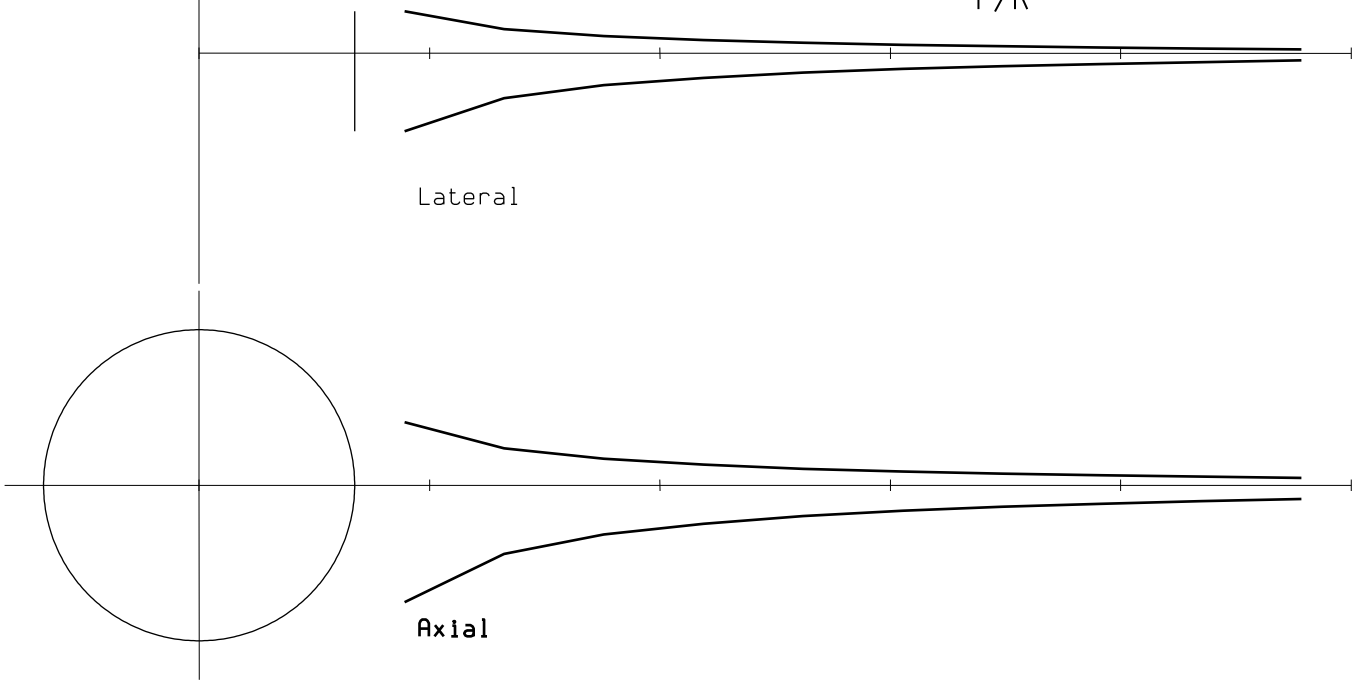
| | | |
|---|---|---|
| #bld = 4 | $\beta_{twist}$ = 6.530 | |
| Rtip = 0.5598 | Ctip = 0.0116 | $\beta_{tip}$ = 27.15 |
| Rhub = 0.0756 | Chub = 0.1051 | $\beta_{hub}$ = 33.68 |
| Rmean= 0.3994 | Cmean= 0.1051 | $\beta_{mean}$ = 30.94 |
| Adisk= 0.966638 | Atip = 0.984586 | $\sigma_{mean}$ = 0.0290 |

# Bladed rotor + actdisk stator t

| | | | | |
|---|---|---|---|---|
| #bld= 4 | R m = 0.560 | Adisk= 0.966638 | $\sigma_{mean}$ = 0.0290 | $\beta_{twist}$= 6.530 |
| Vm/s= 0.100 | RPM = 6000.0 | V/ΩR= 0.0003 | h km= 0.000 | $\beta_{tip}$ = 27.151 |
| Ttot N= 2453.459 | Tduct= 1056.288 | P(kW)= 411.7303 | Q(Nm)= 655.289 | FOM = 0.135 |
| $T_C$ = 405181.789 | $P_C$ = 679961156.805 | $C_P$ = 0.1269 | $C_P$ = 0.1902 | $\eta$ = 0.0006 |

T(N) = 1397.171 P(kW) = 0.0000 Q(Nm) = 655.289 Vavg= 42.653



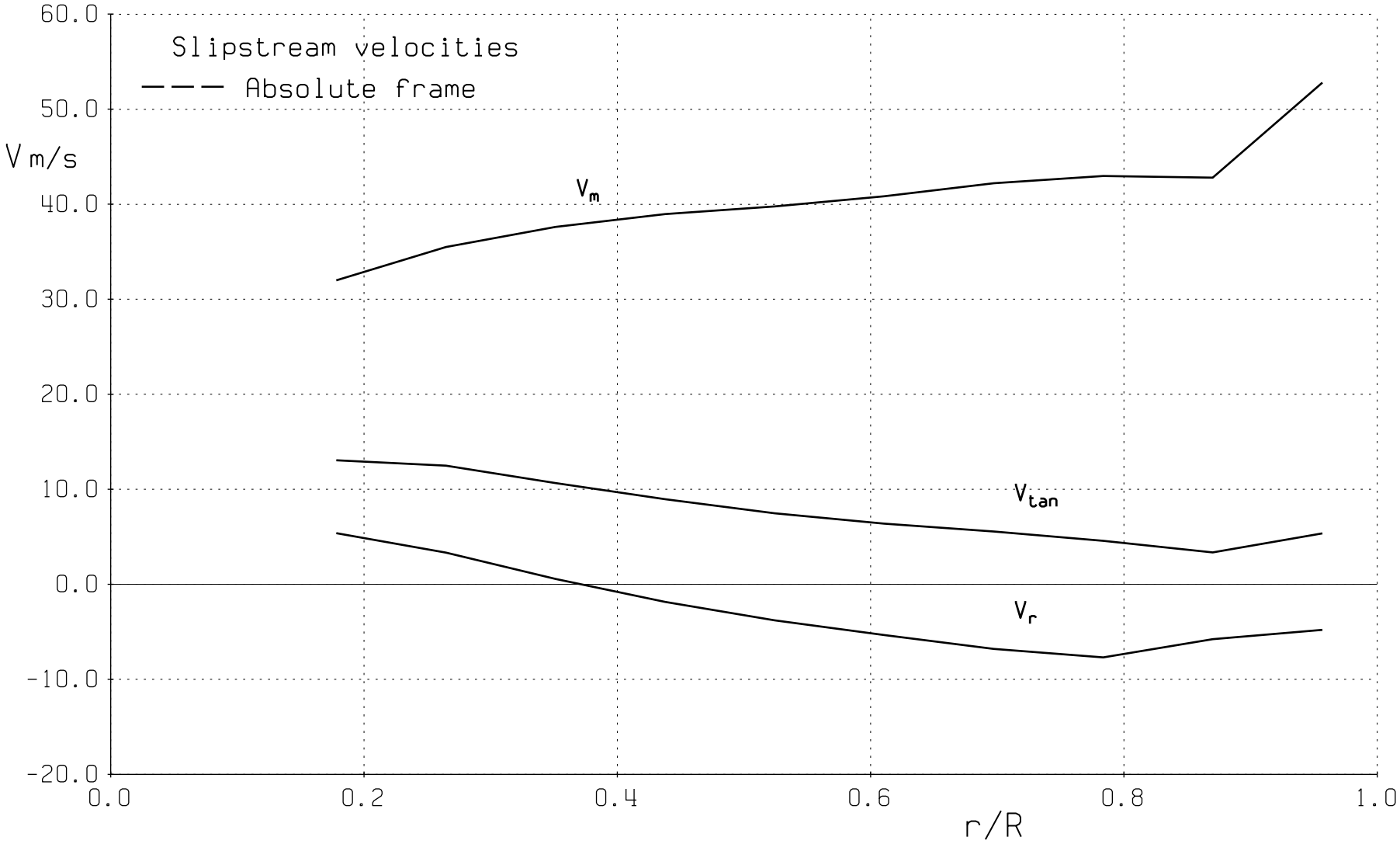



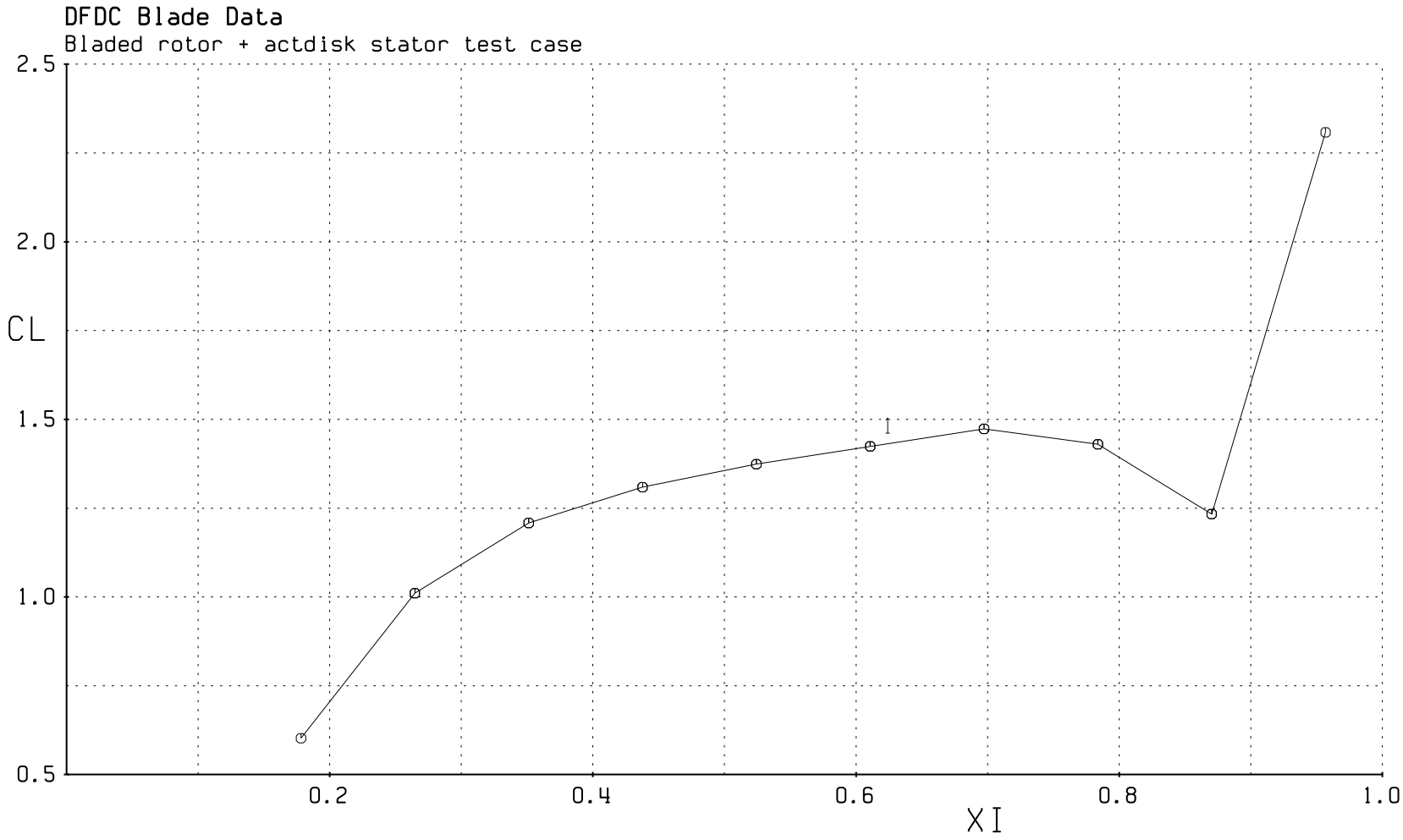

Bladed rotor + actdisk stator test case

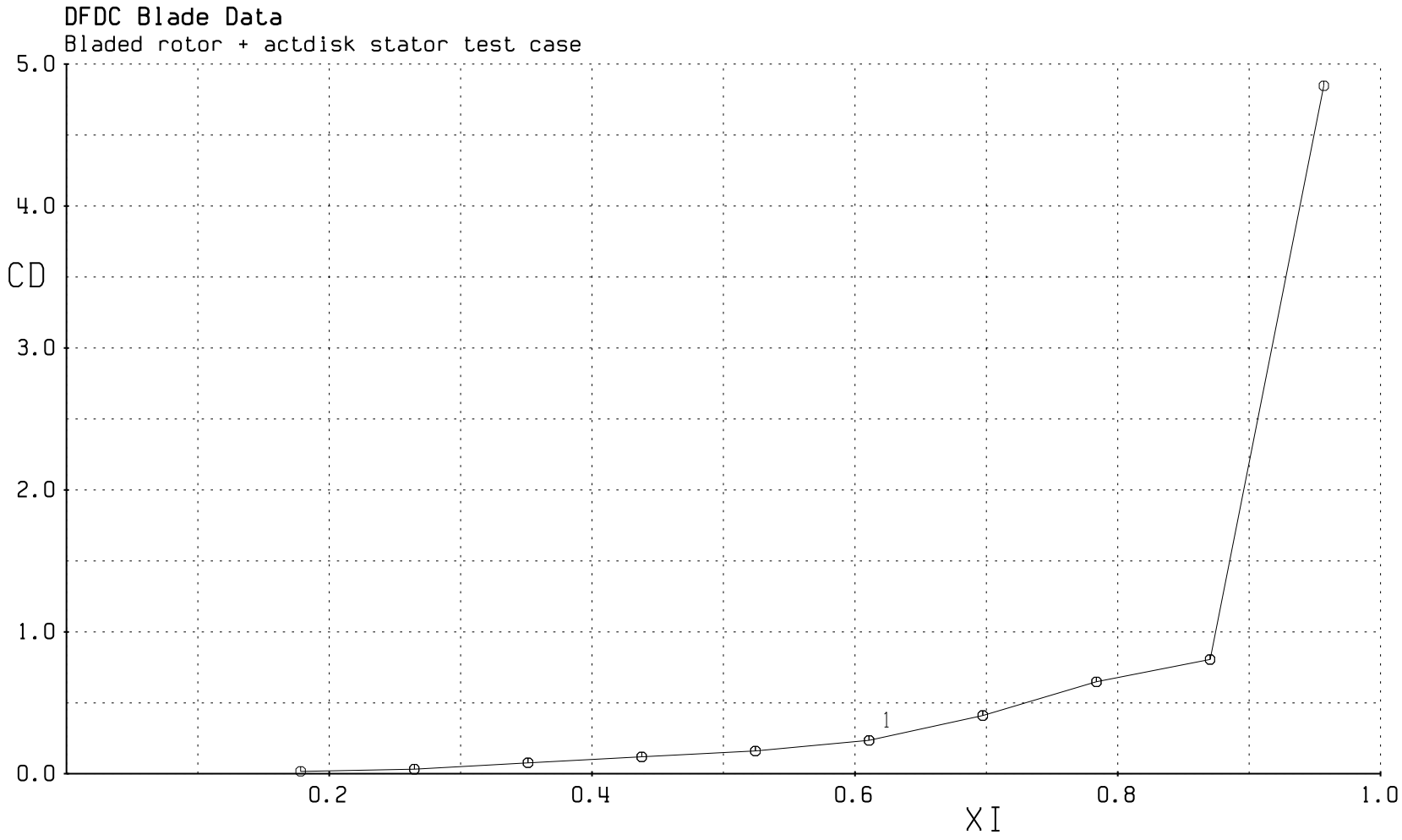
# Bladed rotor + actdisk stator t

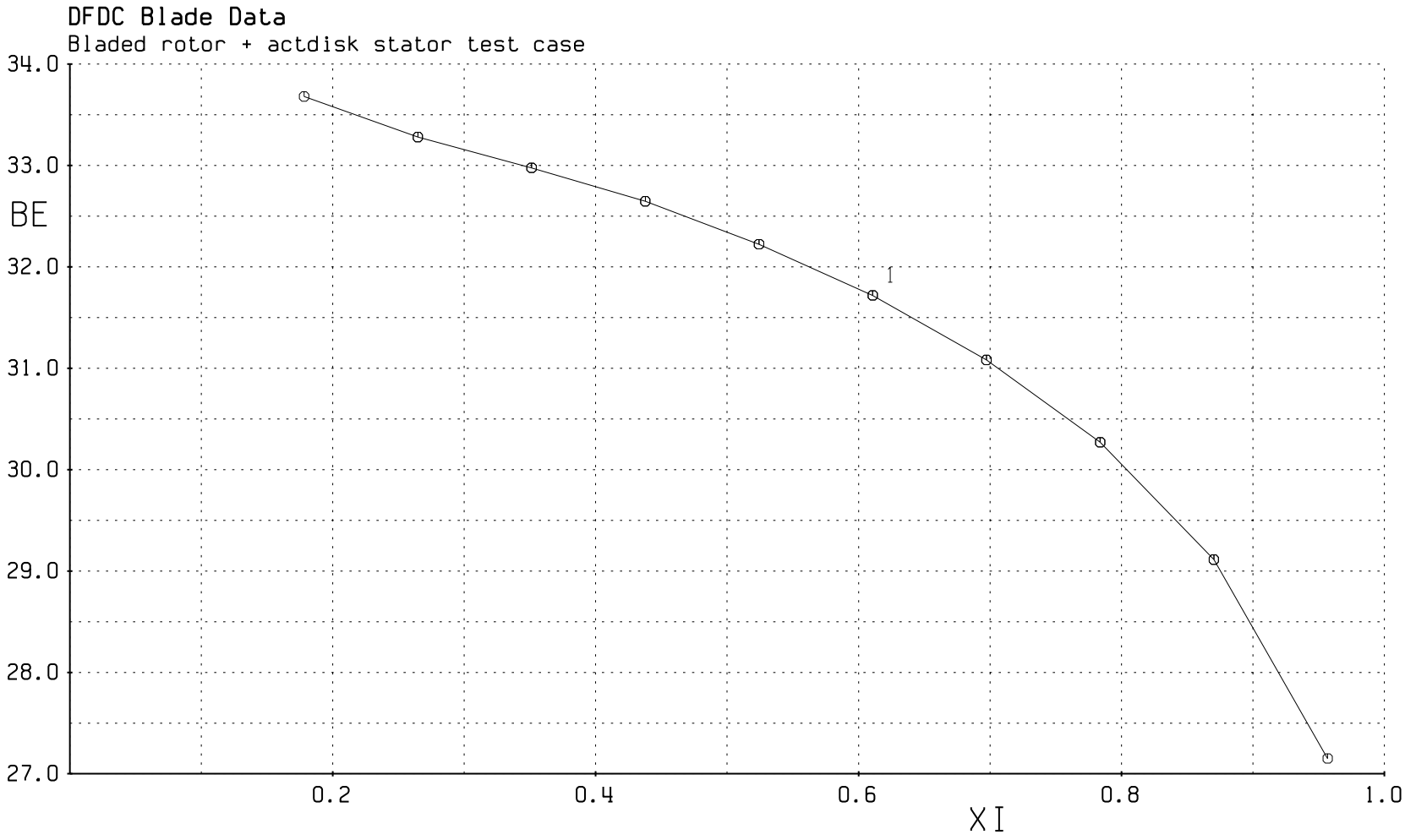
| | | | | |
|---|---|---|---|---|
| #bld= 4 | R m = 0.560 | Adisk= 0.966638 | $\sigma_{mean}$ = 0.0290 | $\beta_{twist}$= 6.530 |
| Vm/s= 0.100 | RPM = 6000.0 | V/ΩR= 0.0003 | h km= 0.000 | $\beta_{tip}$ = 27.151 |
| Ttot N= 2453.459 | Tduct= 1056.288 | P(kW)= 411.7303 | Q(Nm)= 655.289 | FOM = 0.135 |
| $T_C$ = 405181.789 | $P_C$ = 679961156.805 | $C_T$ = 0.1269 | $C_P$ = 0.1902 | $\eta$ = 0.0006 |

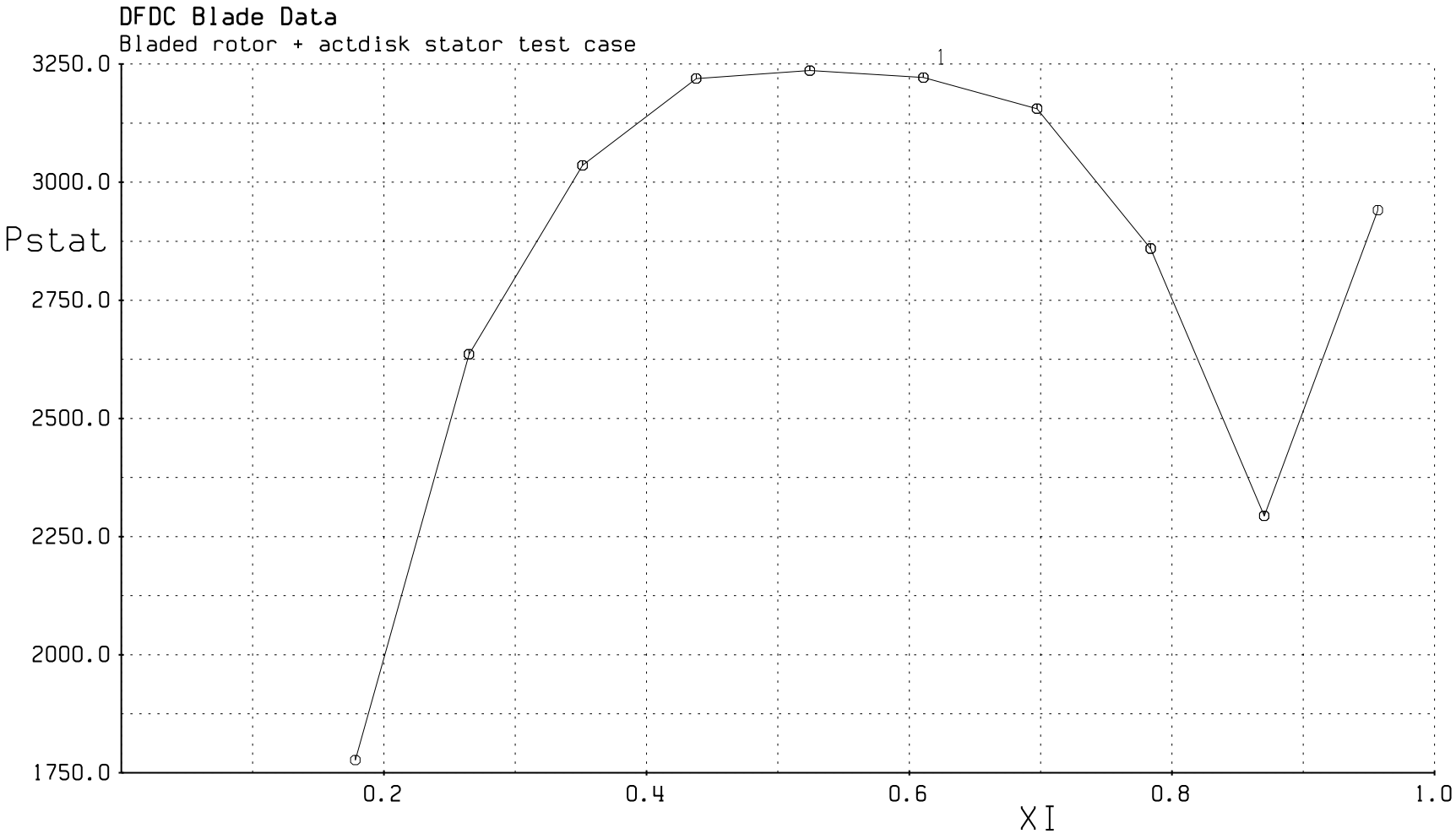
T(N) = 1397.171 P(kW) = 0.0000 Q(Nm) = 655.289 Vavg= 42.653

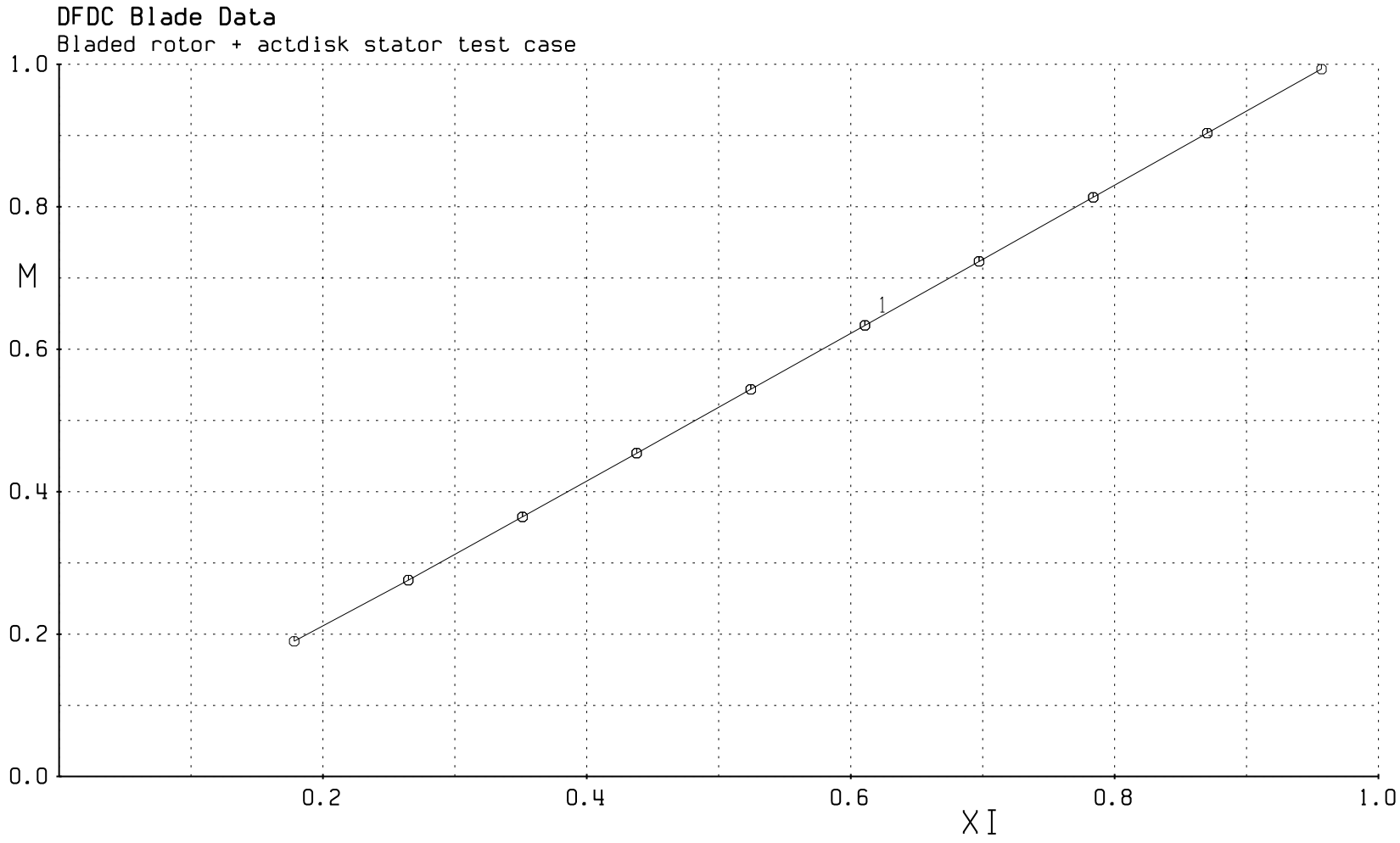


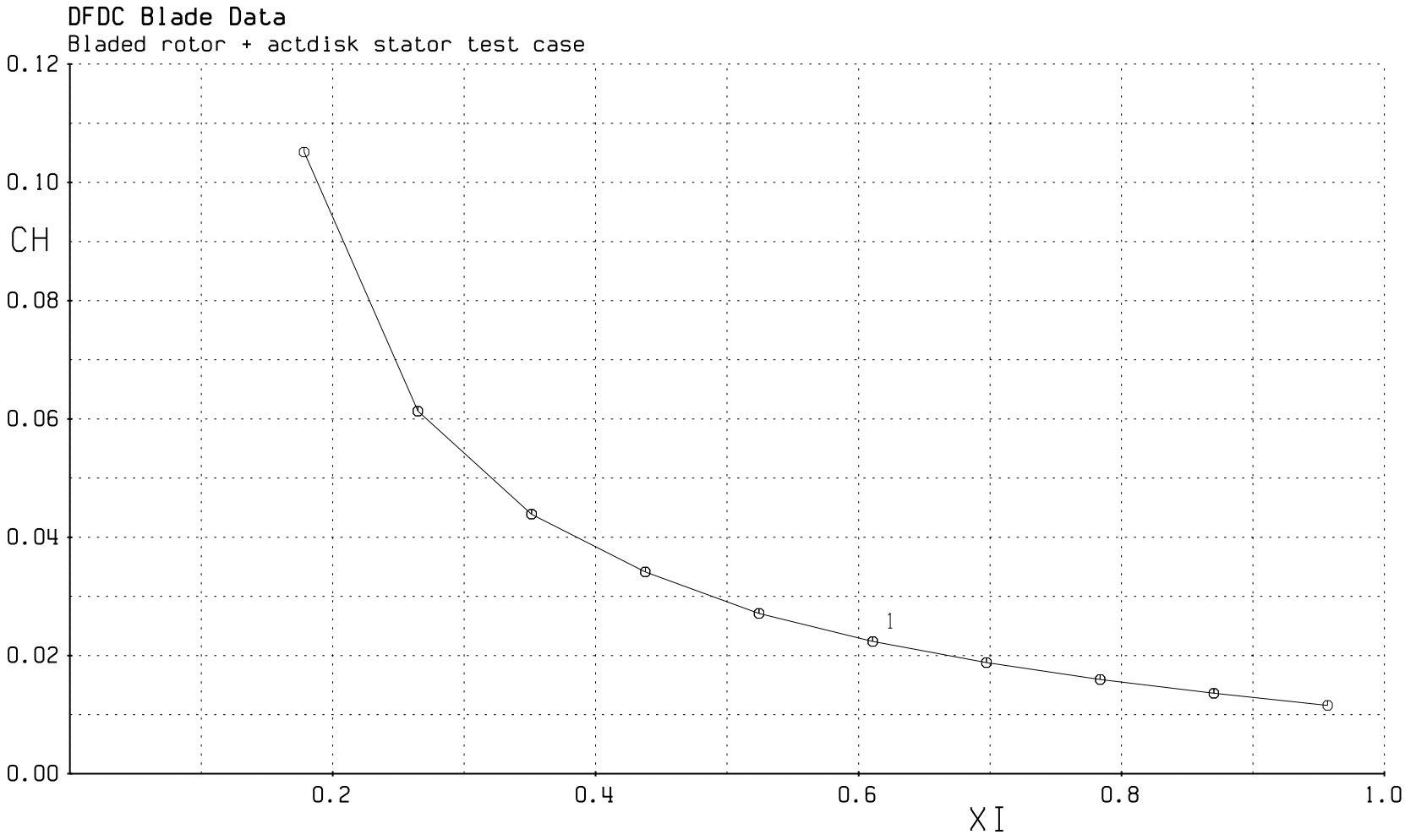

DFDC Blade Data
Bladed rotor + actdisk stator test case
2.5
2.0
1.5
1.0
0.5
CL
0.2
0.4
0.6
0.8
1.0
XI


DFDC Blade Data
Bladed rotor + actdisk stator test case
5.0
4.0
3.0
2.0
1.0
0.0
CD
0.2
0.4
0.6
0.8
1.0
XI
1


DFDC Blade Data
Bladed rotor + actdisk stator test case
34.0
33.0
BE
32.0
31.0
30.0
29.0
28.0
27.0
1
0.2
0.4
0.6
0.8
1.0
XI


DFDC Blade Data
Bladed rotor + actdisk stator test case
1
3250.0
3000.0
Pstat
2750.0
2500.0
2250.0
2000.0
1750.0
0.2
0.4
0.6
0.8
1.0
XI


DFDC Blade Data
Bladed rotor + actdisk stator test case
1.0
0.8
M
0.6
0.4
0.2
0.0
1
0.2
0.4
0.6
0.8
1.0
XI


DFDC Blade Data
Bladed rotor + actdisk stator test case
0.12
0.10
CH
0.08
0.06
0.04
0.02
0.00
0.2
0.4
0.6
0.8
1.0
XI
1