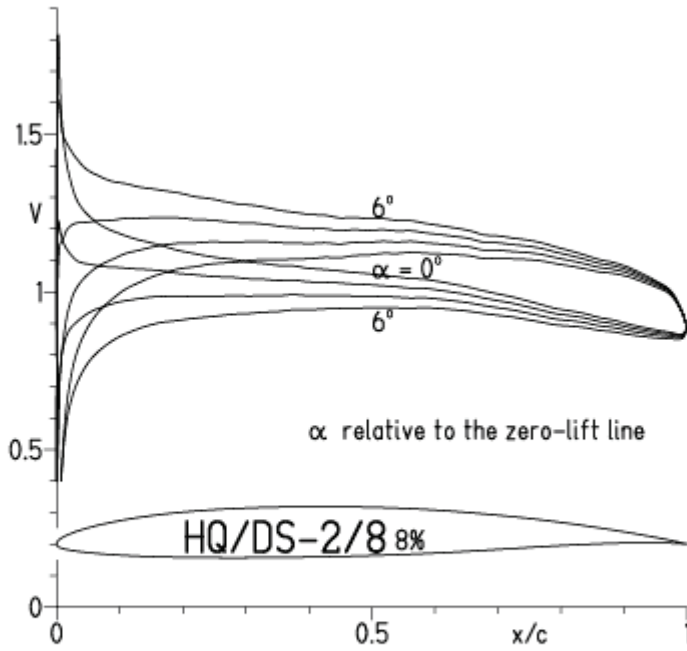
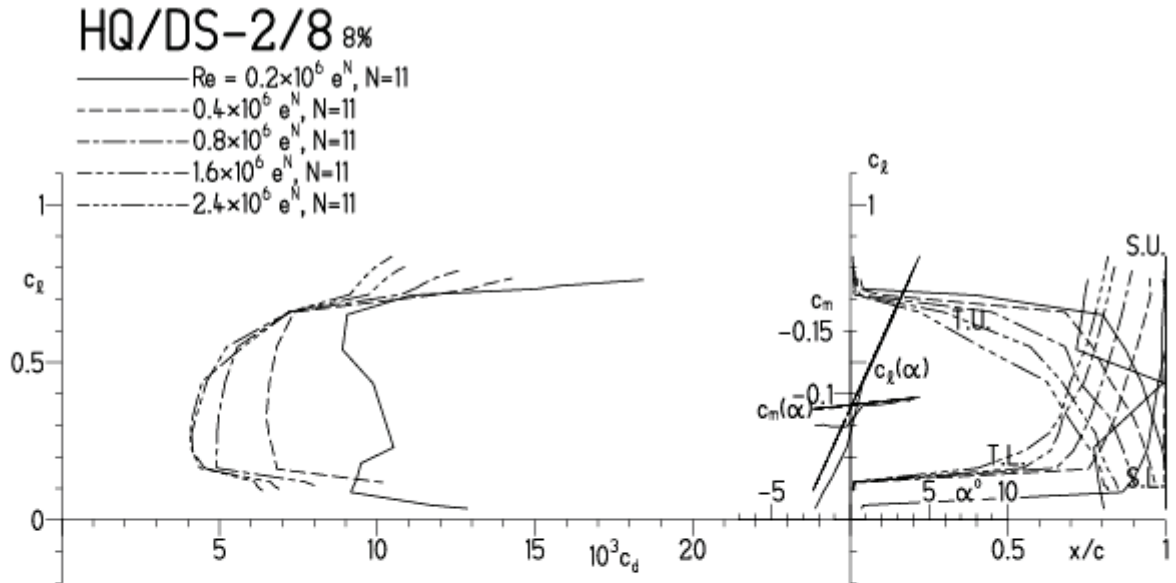


# HQ/DS-2/8-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 27.3.12 11:39

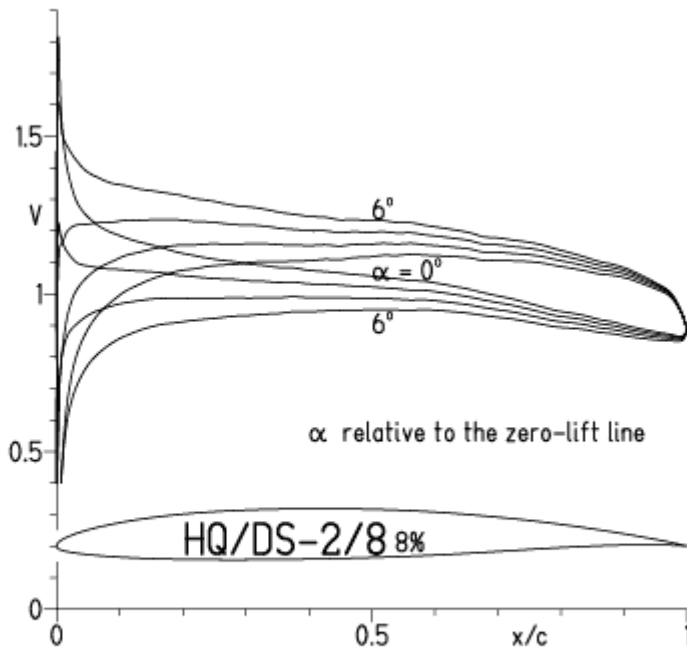


EPPLER 2005 V. 8.5.07 RUN 27.3.12 11:39

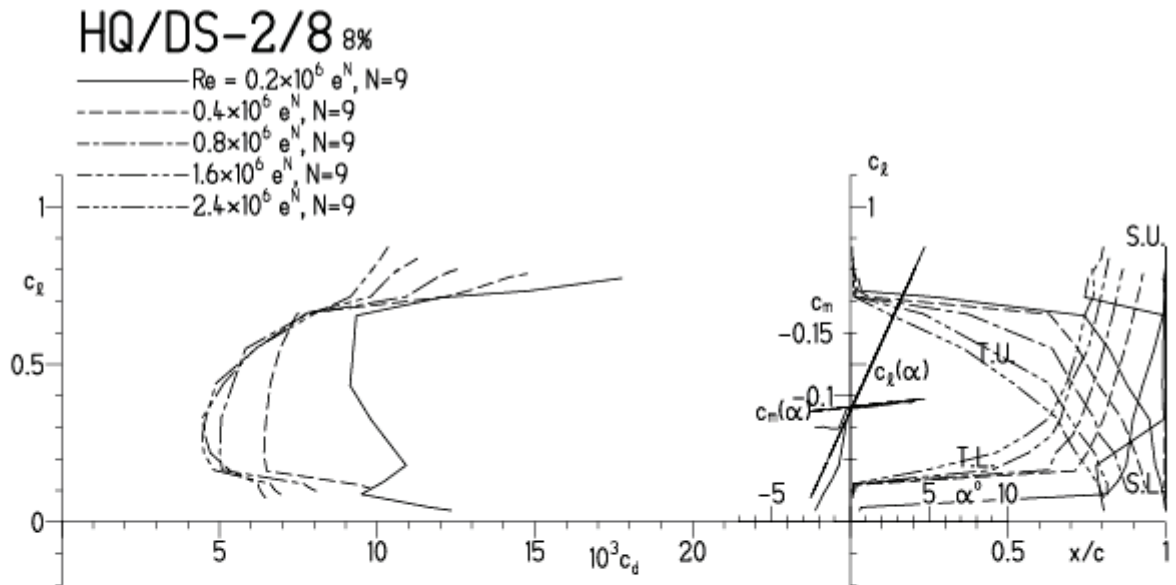


# HQ/DS-2/8-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:09

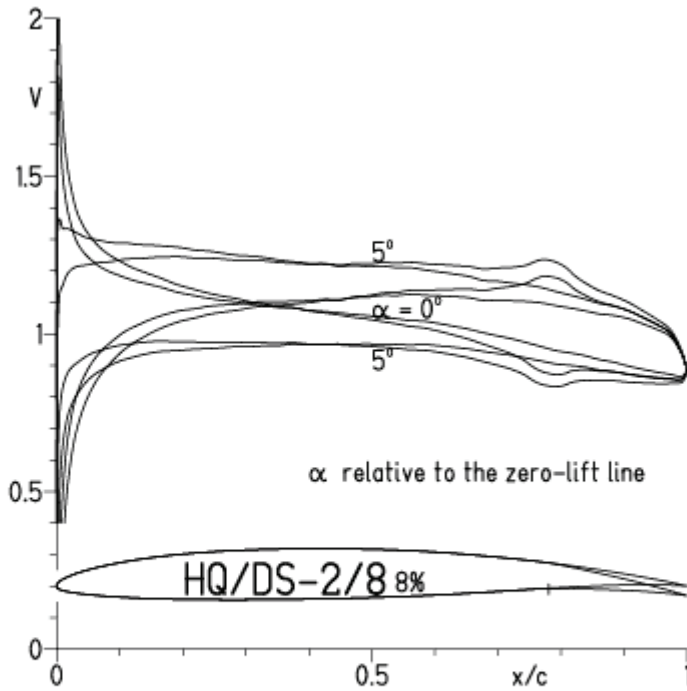


EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:09



HQ/DS-2/8-Polaren, N=11, mit 4° Wölbklappenausschlag

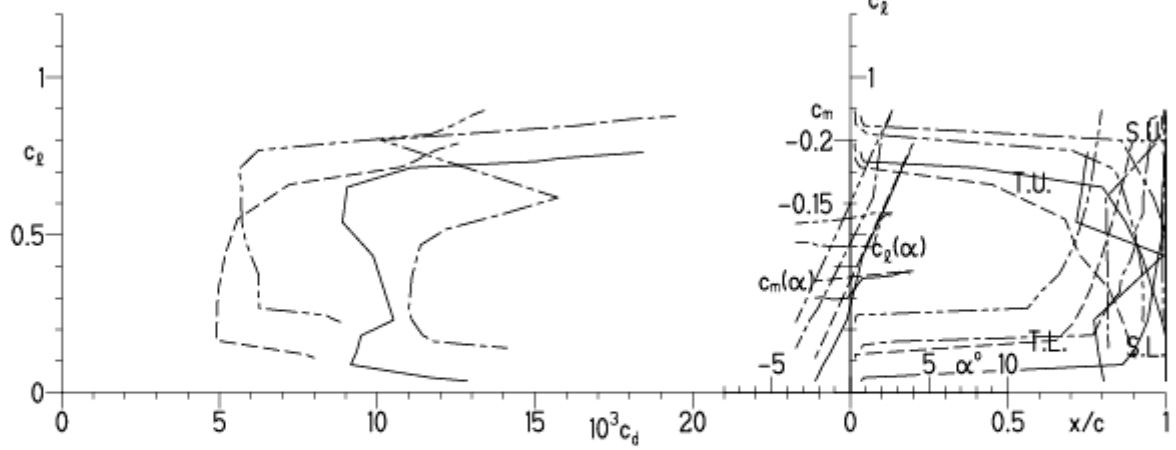
EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:23



EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:23

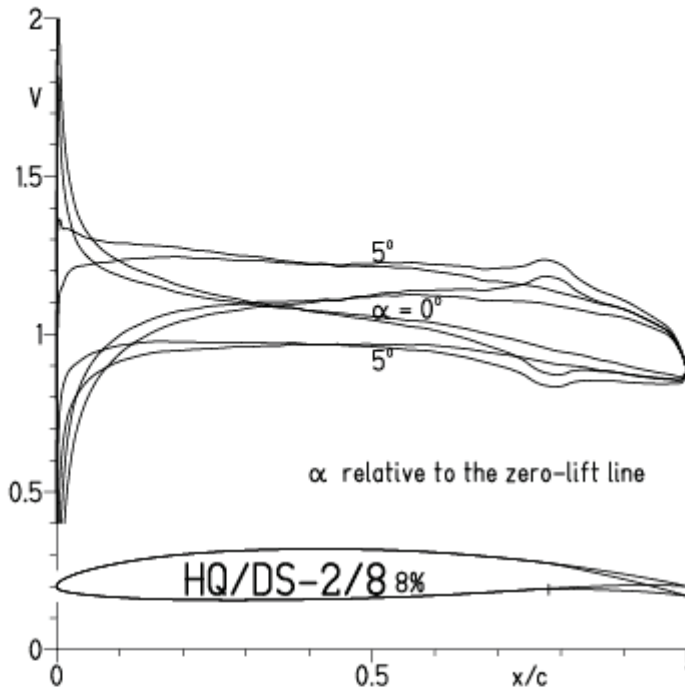
HQ/DS-2/8 8%

- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.8 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } 4^\circ, Re = 0.2 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } 4^\circ, Re = 0.8 \times 10^6 e^N, N=11$



**HQ/DS-2/8-Polaren**, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt  
(optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

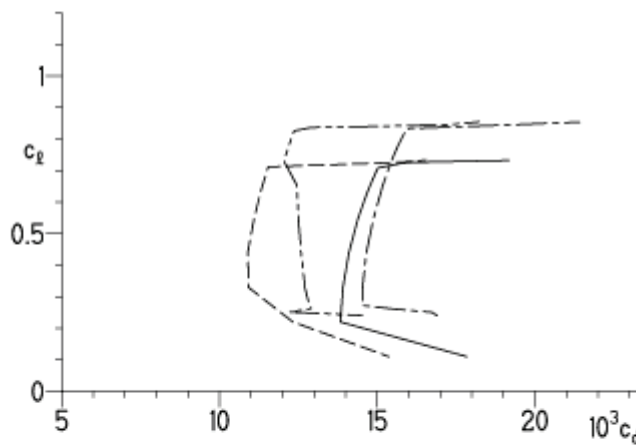
EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:36



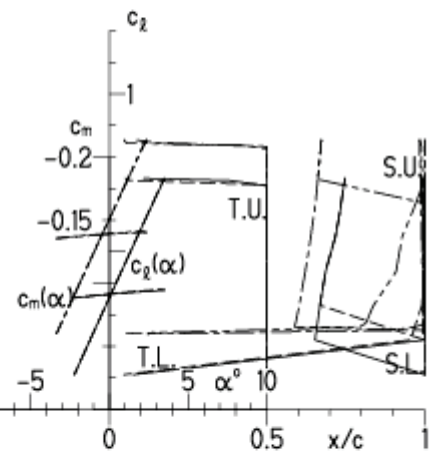
EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:36

**HQ/DS-2/8 8%**

- Re = 75 000, Turb. upper 50%  $e^N$ , N=11
- - -  $0.15 \times 10^6$ , Turb. upper 50%  $e^N$ , N=11
- · - · 22% Flap 4°, Re = 75 000, Turb. upper 50%  $e^N$ , N=11
- · - · 22% Flap 4°, Re =  $0.15 \times 10^6$ , Turb. upper 50%  $e^N$ , N=11

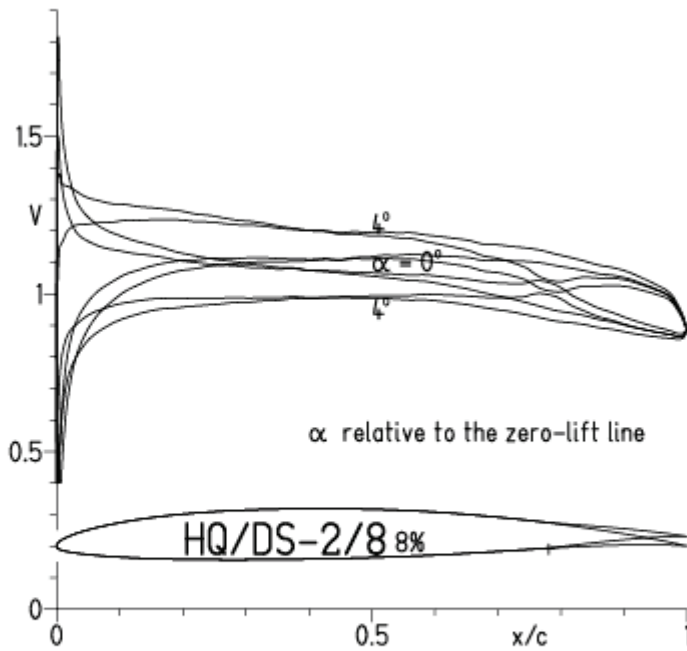


- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



HQ/DS-2/8-Polaren, N=11, mit -4° Wölbklappenausschlag

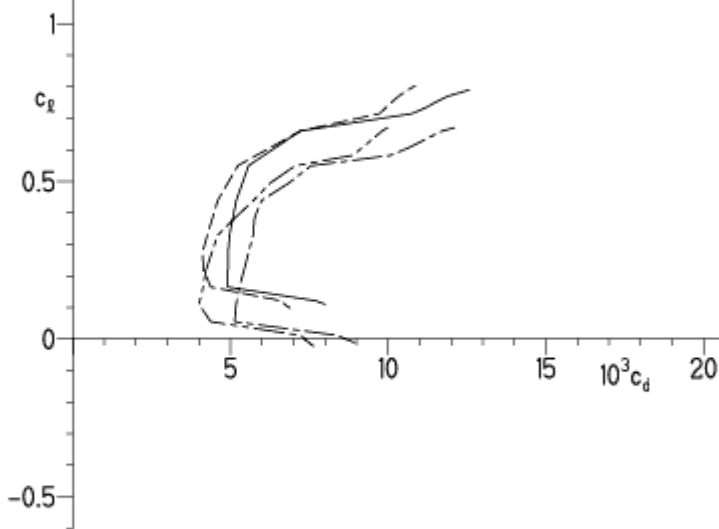
EPPLER 2005 V. 8.5.07 RUN 27.3.12 12:51



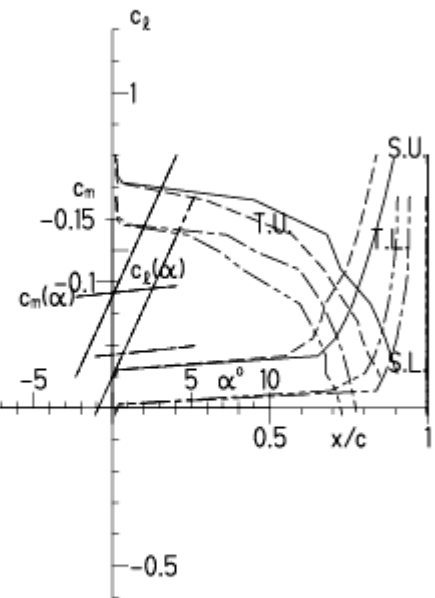
EPPLER 2

HQ/DS-2/8 8%

- $Re = 0.8 \times 10^6 e^N, N=11$
- - -  $1.6 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } -4^\circ, Re = 0.8 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } -4^\circ, Re = 1.6 \times 10^6 e^N, N=11$

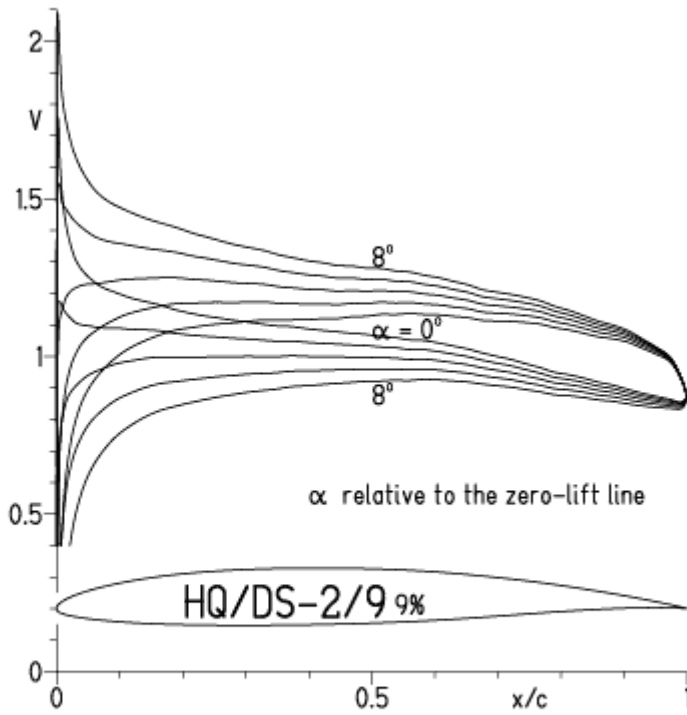


- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



HQ/DS-2/9-Polaren, N=11

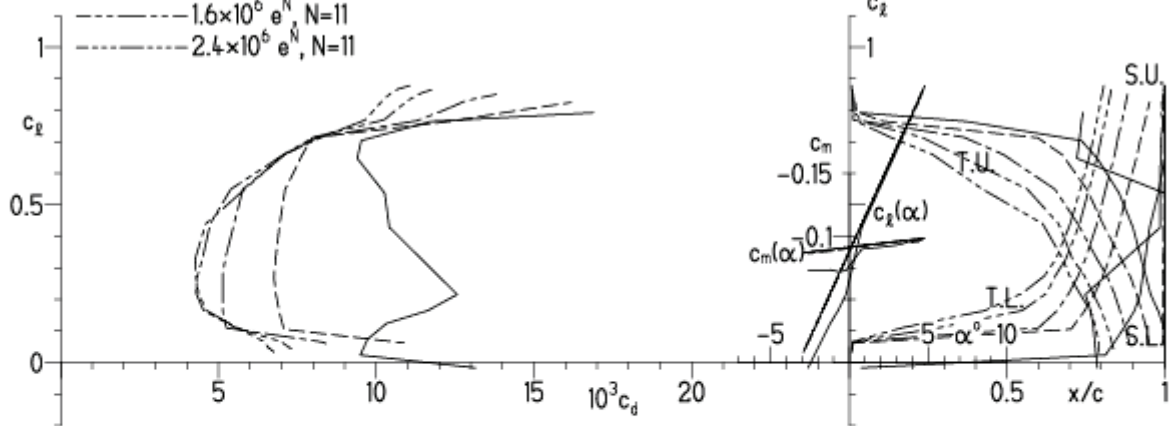
EPPLER 2005 V. 8.5.07 RUN 27.3.12 16:57



EPPLER 2005 V. 8.5.07 RUN 27.3.12 16:57

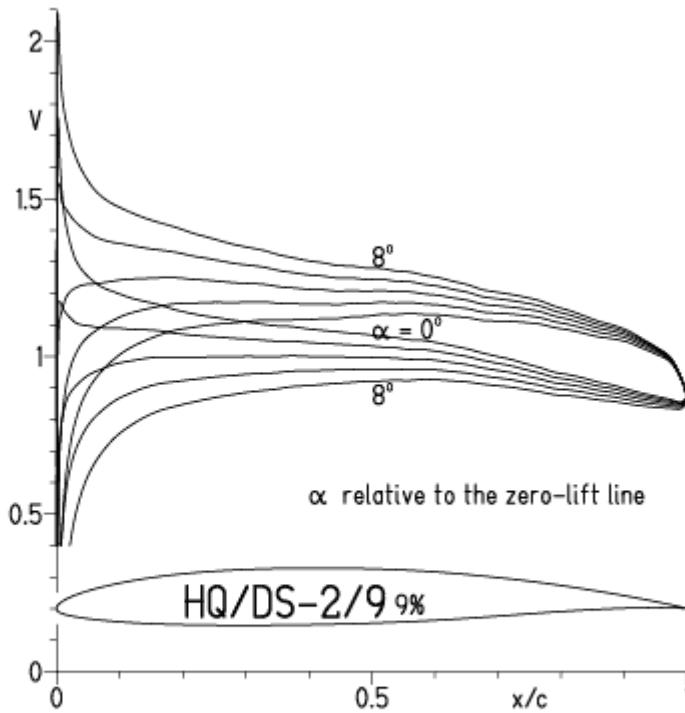
HQ/DS-2/9 9%

- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.4 \times 10^6 e^N, N=11$
- · -  $0.8 \times 10^6 e^N, N=11$
- · · -  $1.6 \times 10^6 e^N, N=11$
- · · · -  $2.4 \times 10^6 e^N, N=11$

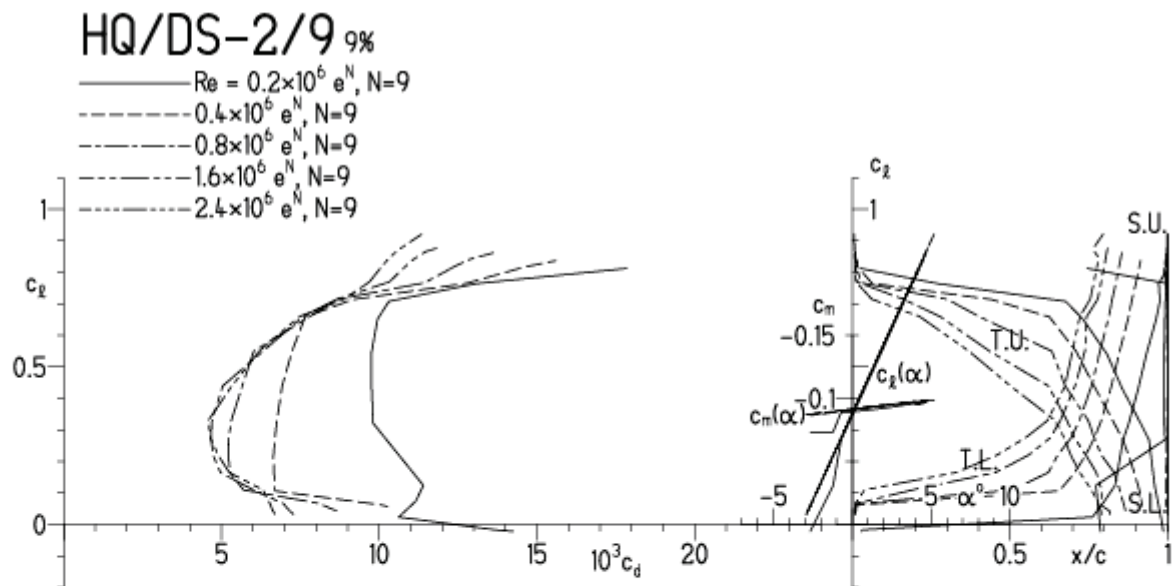


# HQ/DS-2/9-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 27.3.12 17:11

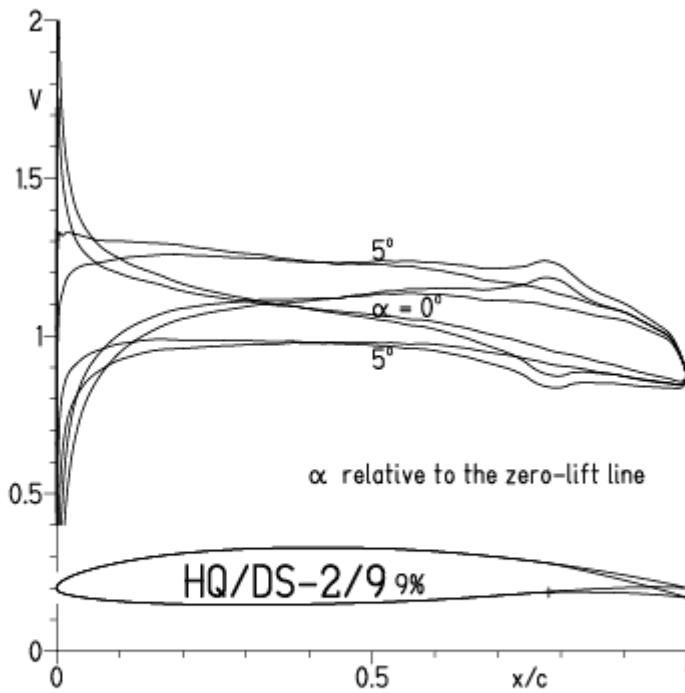


EPPLER 2005 V. 8.5.07 RUN 27.3.12 17:11



# HQ/DS-2/9-Polaren, N=11, mit 4° Wölbklappenausschlag

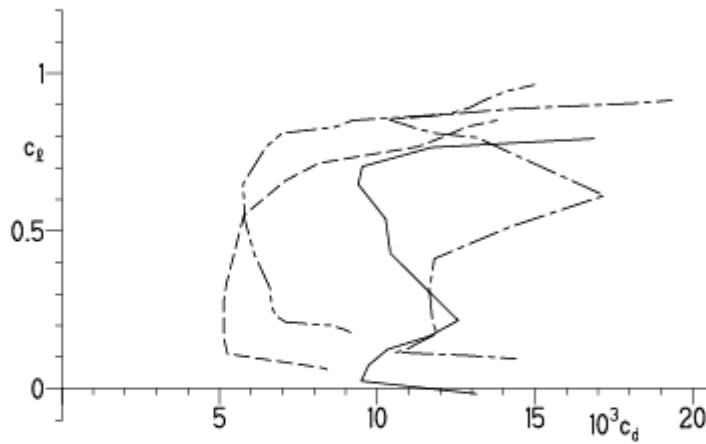
EPPLER 2005 V. 8.5.07 RUN 27.3.12 17:56



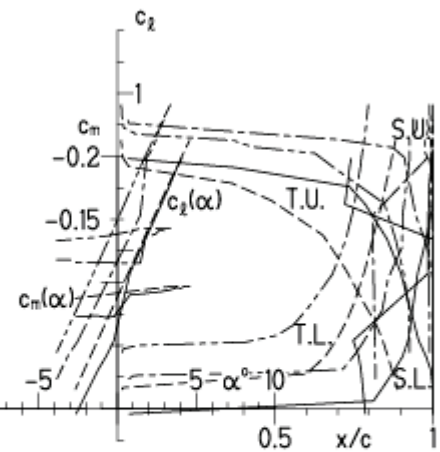
EPPLER 2005 V. 8.5.07 RUN 27.3.12 17:56

## HQ/DS-2/9 9%

- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.8 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } 4^\circ, Re = 0.2 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } 4^\circ, Re = 0.8 \times 10^6 e^N, N=11$



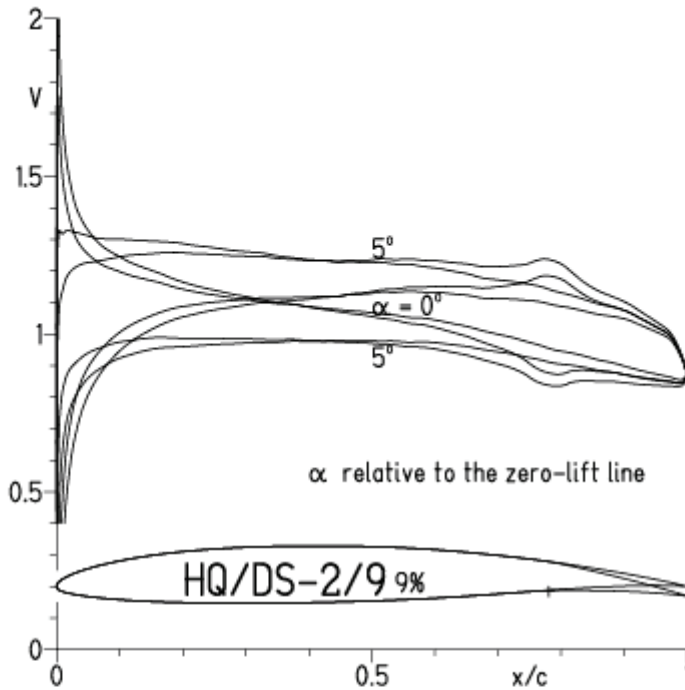
- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface





**HQ/DS-2/9-Polaren, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt**  
 (optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

EPPLER 2005 V. 8.5.07 RUN 27.3.12 18:14

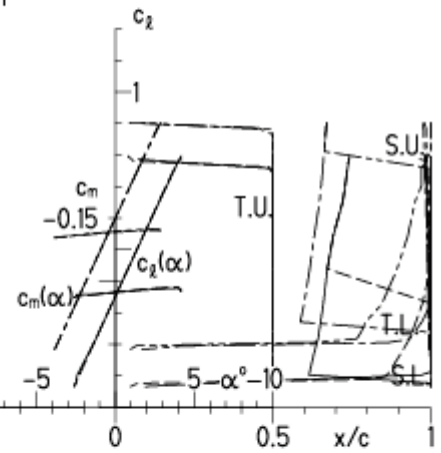
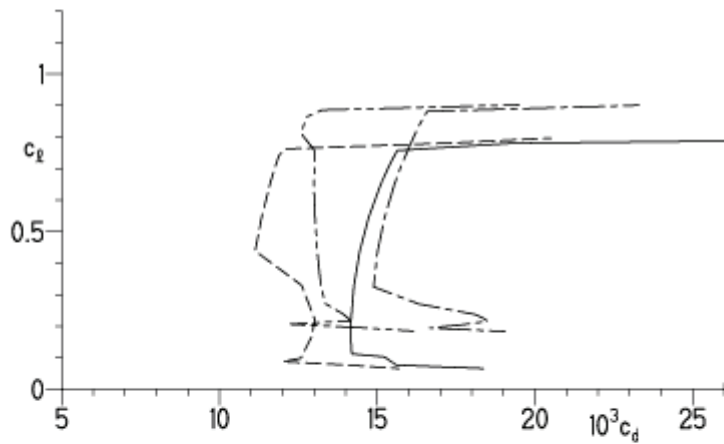


EPPLER 2005 V. 8.5.07 RUN 27.3.12 18:14

**HQ/DS-2/9 9%**

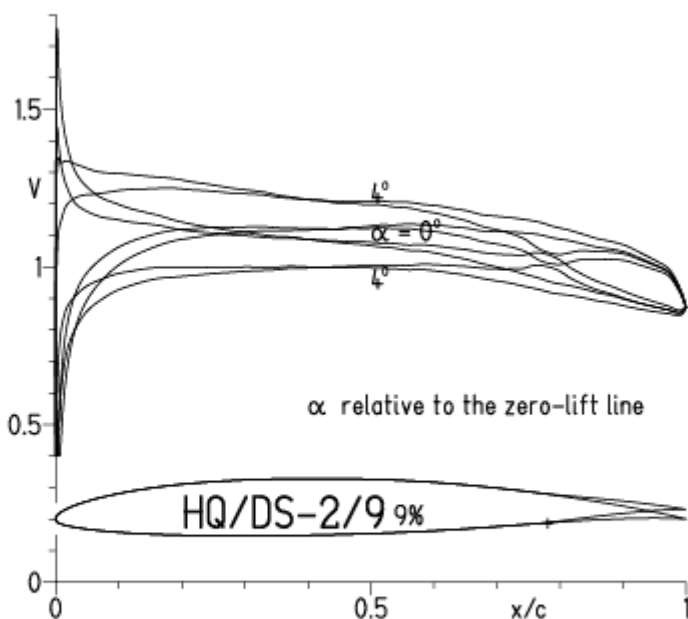
- Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- - - 0.15 × 10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 0.15 × 10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface

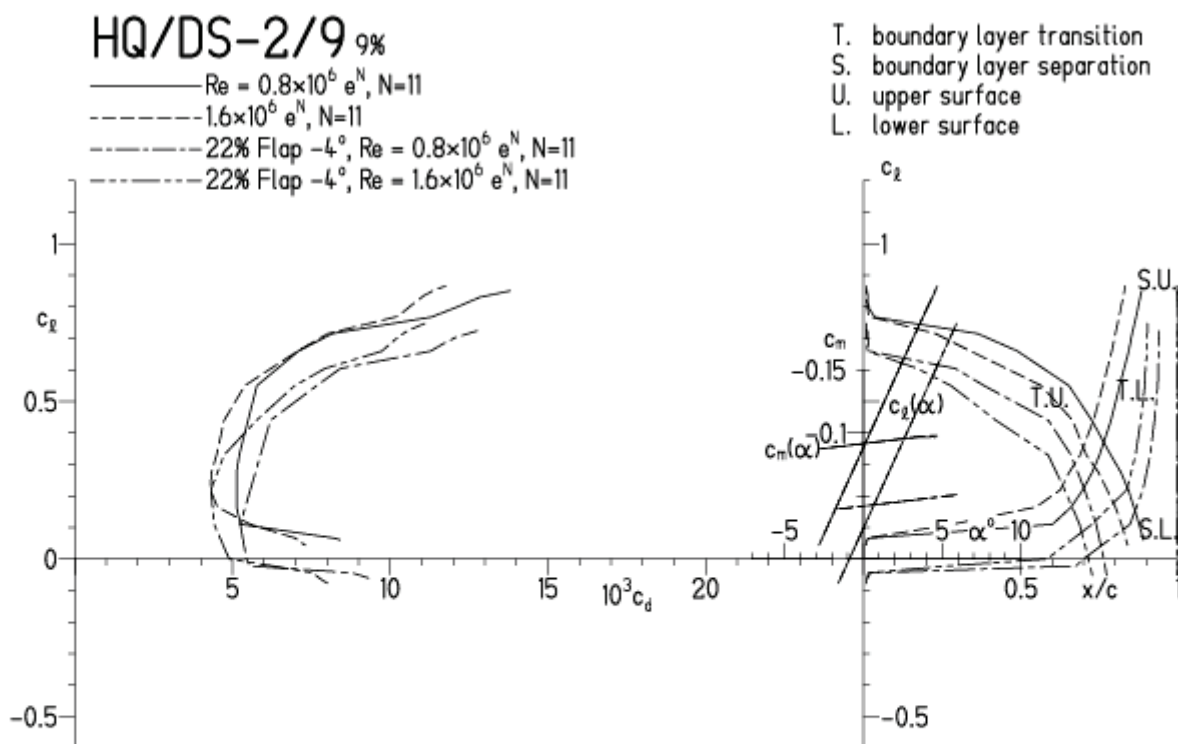


HQ/DS-2/9-Polaren, N=11, mit -4° Wölbklappenausschlag, Turbulatoreffekt

EPPLER 2005 V. 8.5.07 RUN 27.3.12 18:33

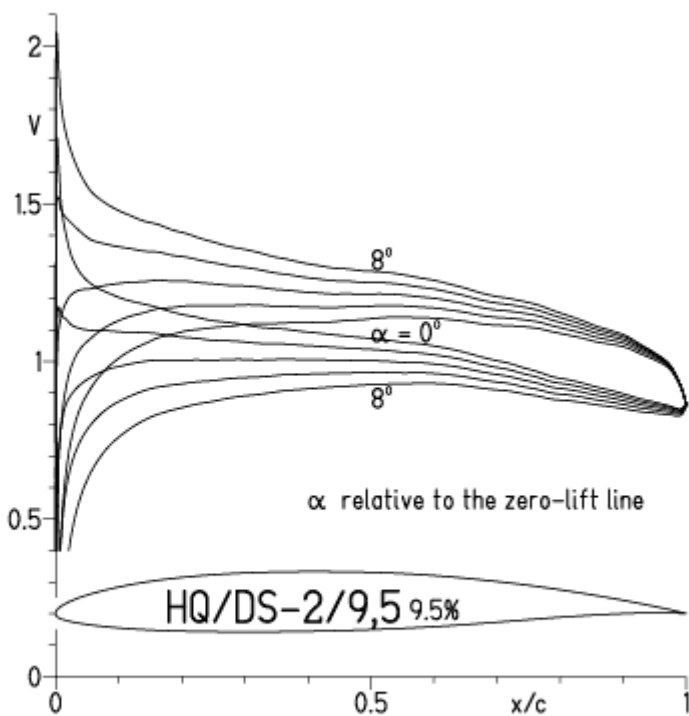


EPPLER 2005 V. 8.5.07 RUN 27.3.12 18:3

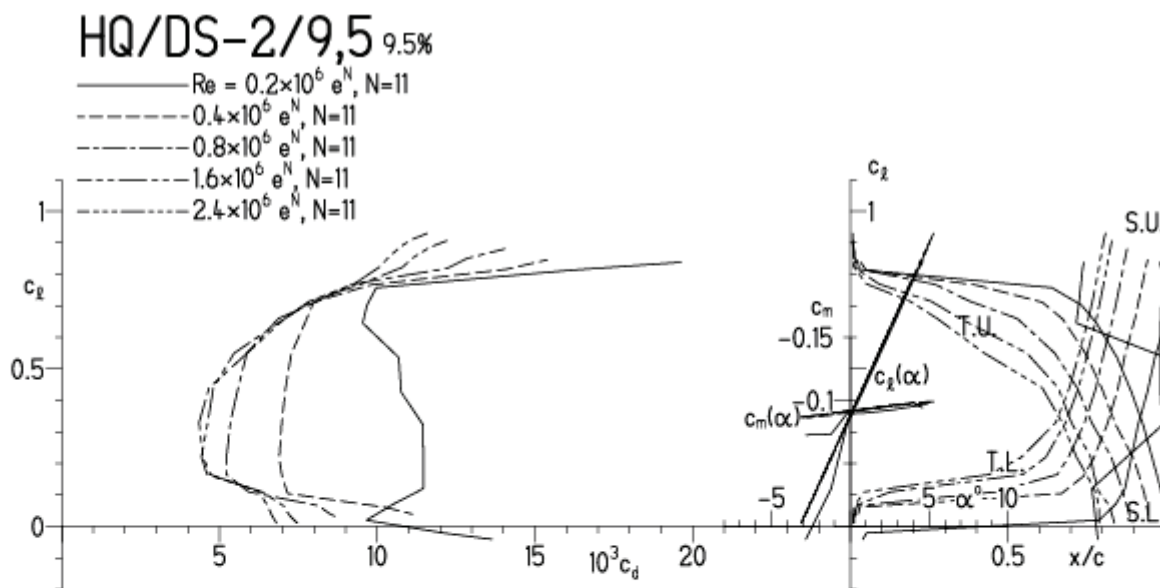


HQ/DS-2/9,5-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 28.3.12 16:57

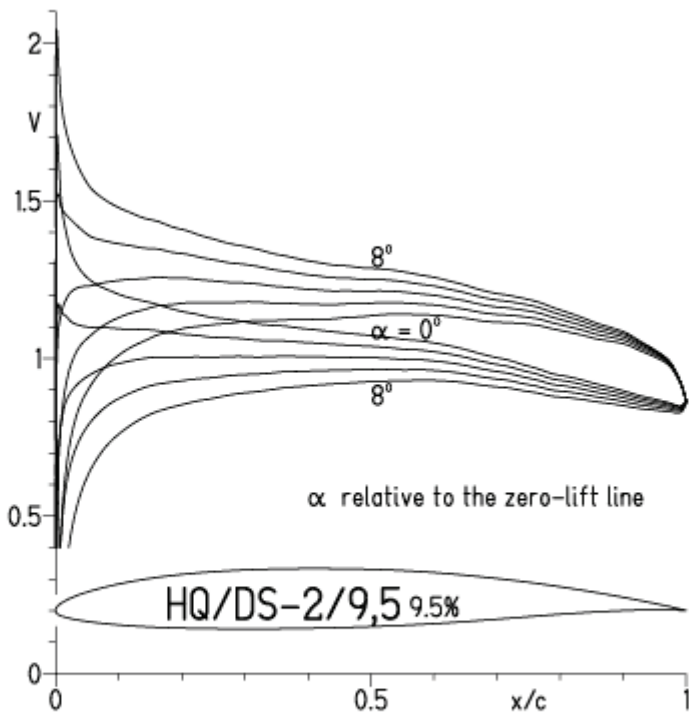


EPPLER 2005 V. 8.5.07 RUN 28.3.12 16:57

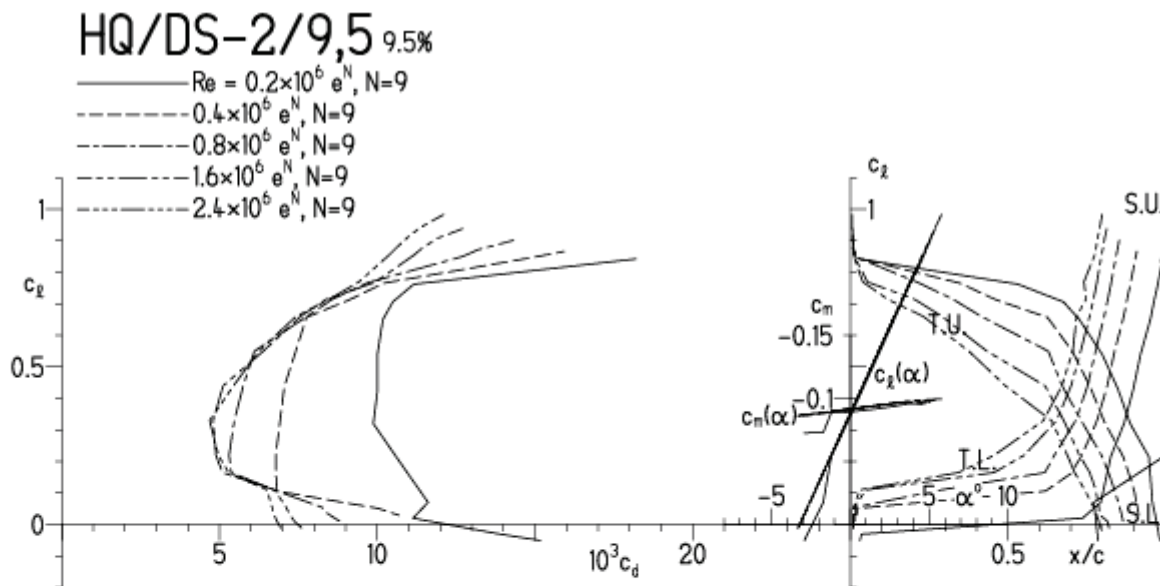


HQ/DS-2/9,5-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 28.3.12 17:18

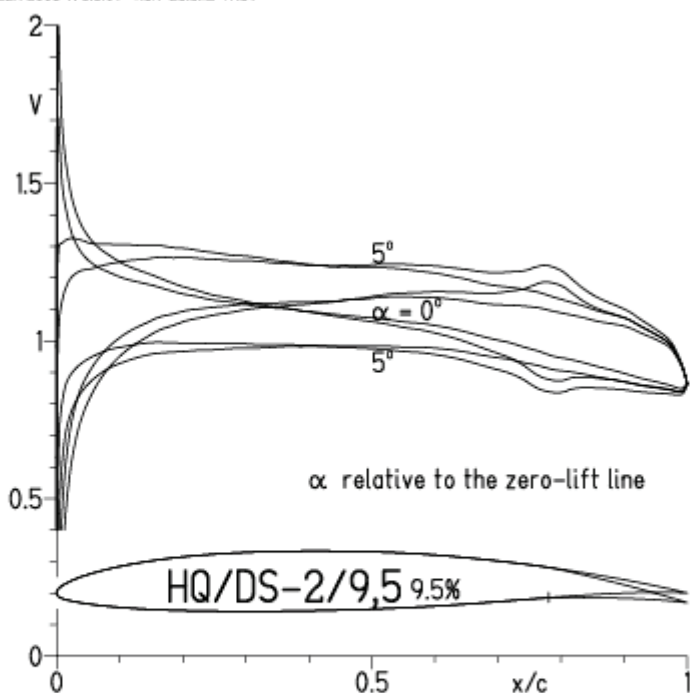


EPPLER 2005 V. 8.5.07 RUN 28.3.12 17:18



HQ/DS-2/9,5-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 28.3.12 17:39

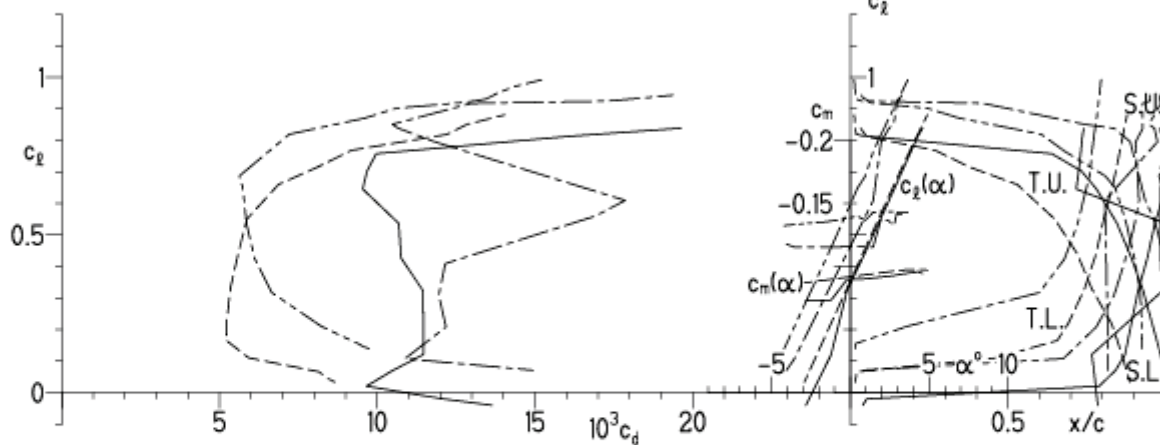


EPPLER 2005 V. 8.5.07 RUN 28.3.12 17:39

HQ/DS-2/9,5 9.5%

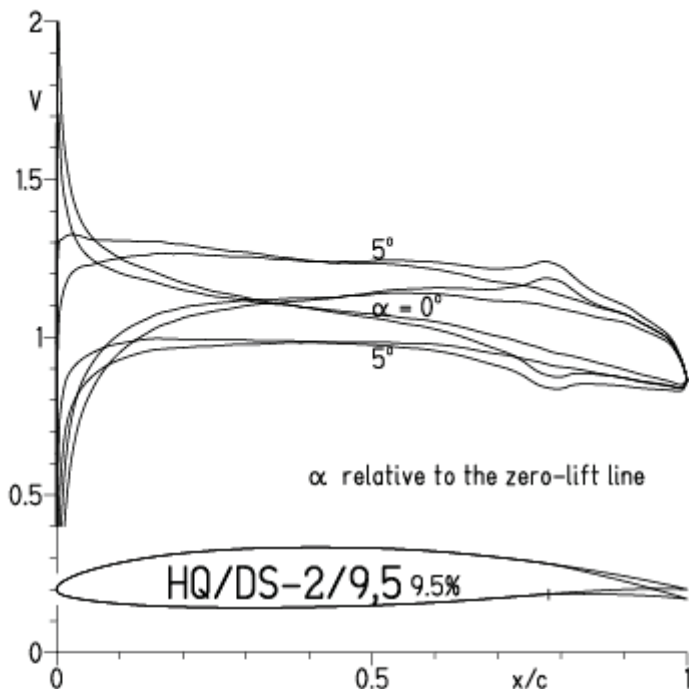
- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.8 \times 10^6 e^N, N=11$
- · - · 22% Flap  $4^\circ, Re = 0.2 \times 10^6 e^N, N=11$
- · - · 22% Flap  $4^\circ, Re = 0.8 \times 10^6 e^N, N=11$

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



**HQ/DS-2/9,5-Polaren**, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt  
 (optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

EPPLER 2005 V. 8.5.07 RUN 28.3.12 18:03

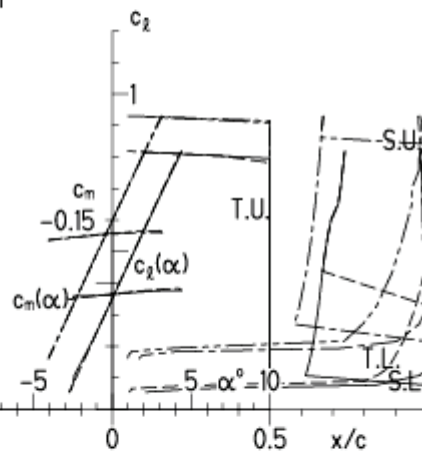
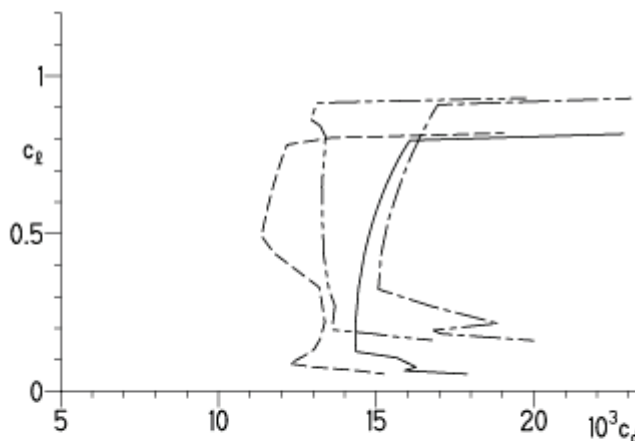


EPPLER 2005 V. 8.5.0

**HQ/DS-2/9,5 9.5%**

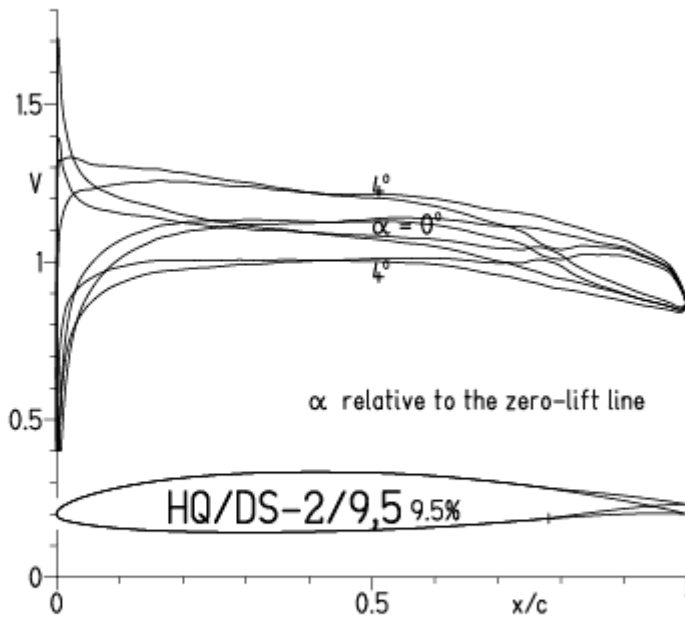
- Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- - - 0.15 × 10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 0.15 × 10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface

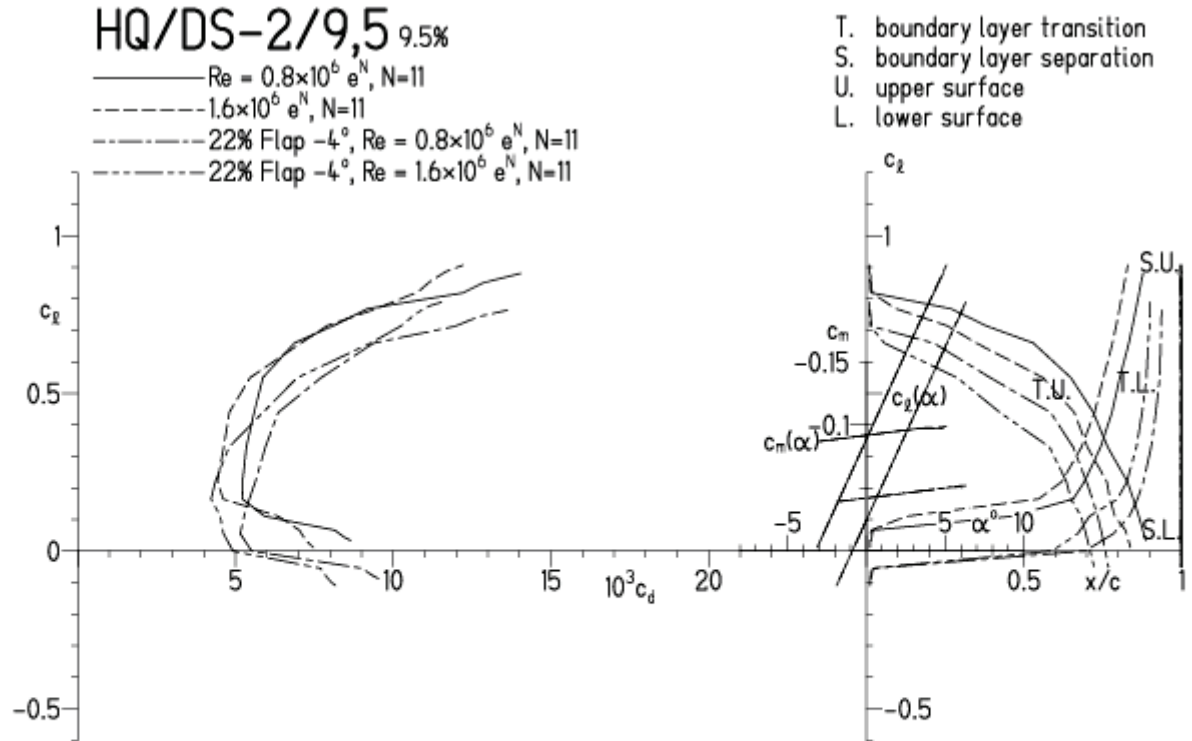


HQ/DS-2/9,5-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 28.3.12 18:33

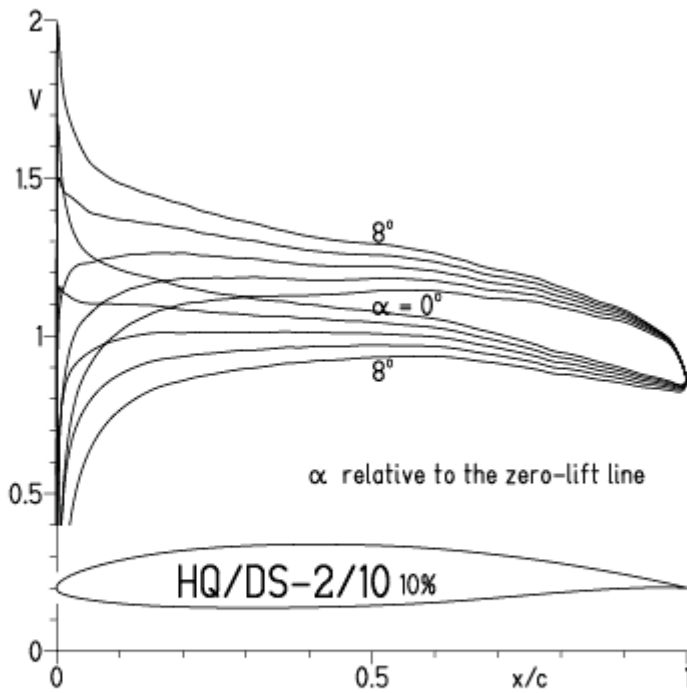


EPPLER 2005 V. 8.5.07 RUN 28.3.12 18:33

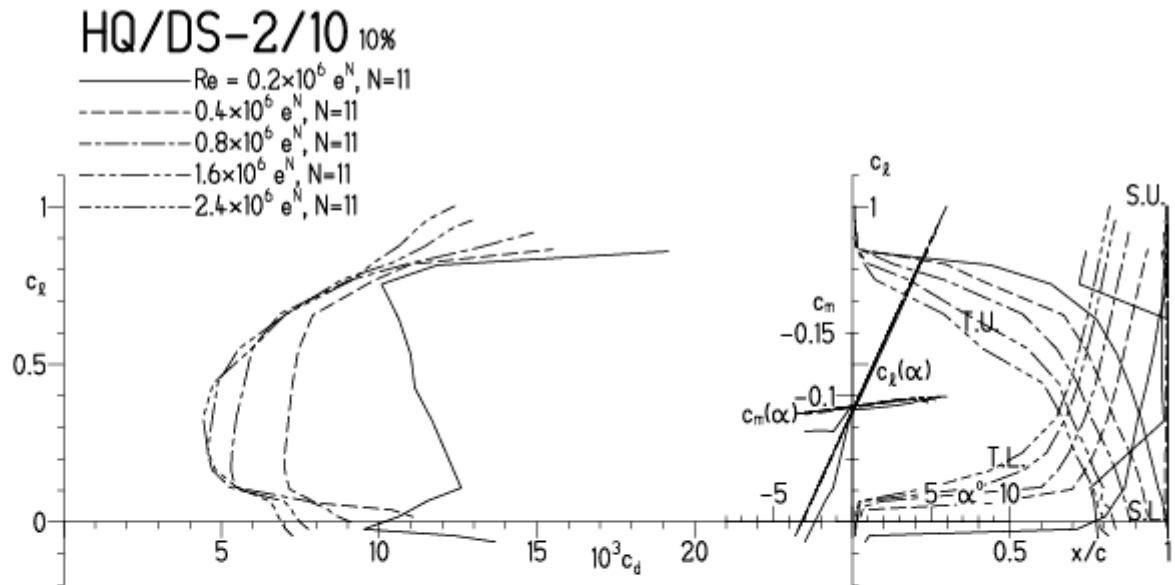


HQ/DS-2/10-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 29.3.12 16:32



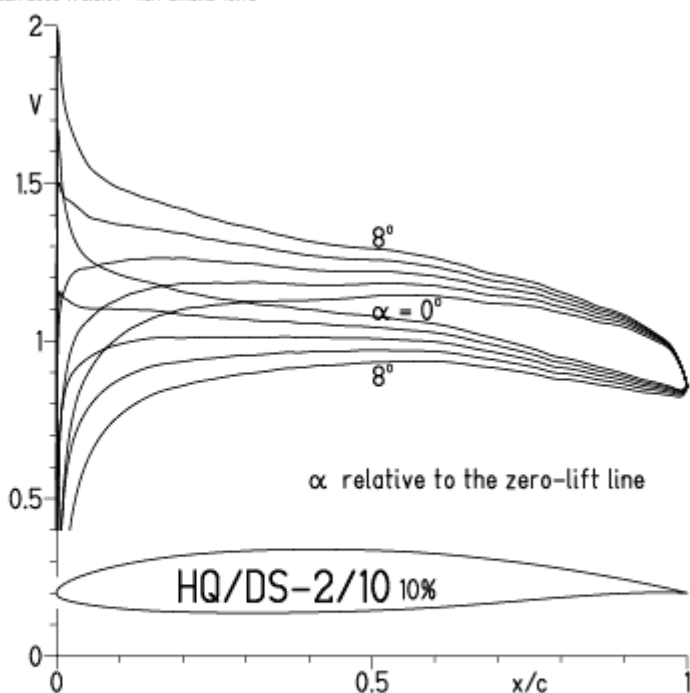
EPPLER 2005 V. 8.5.07 RUN 29.3.12 16:32



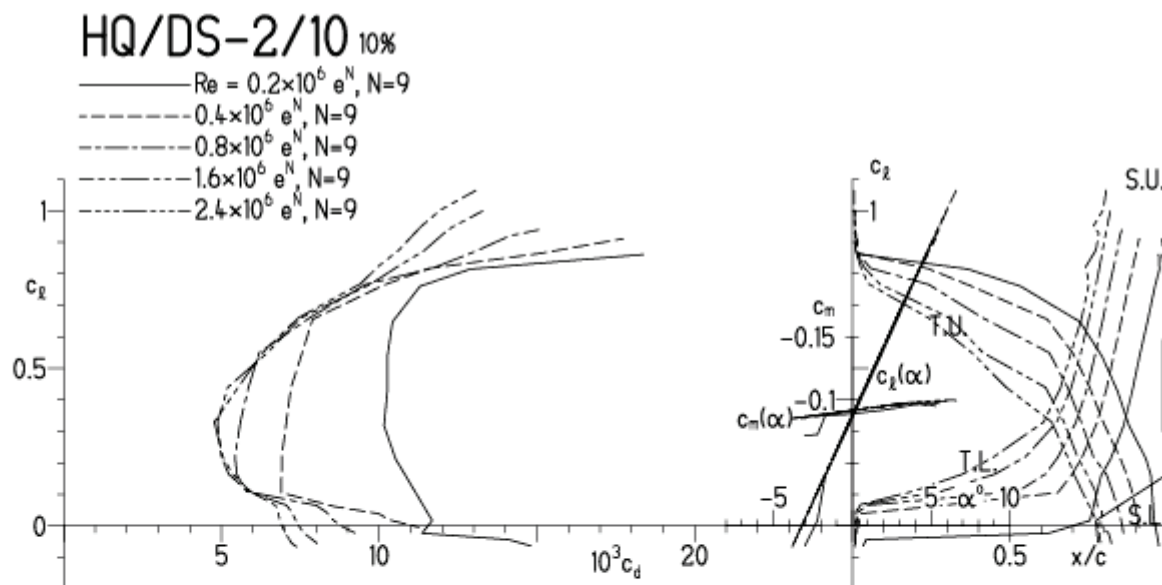


HQ/DS-2/10-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 29.3.12 16:45

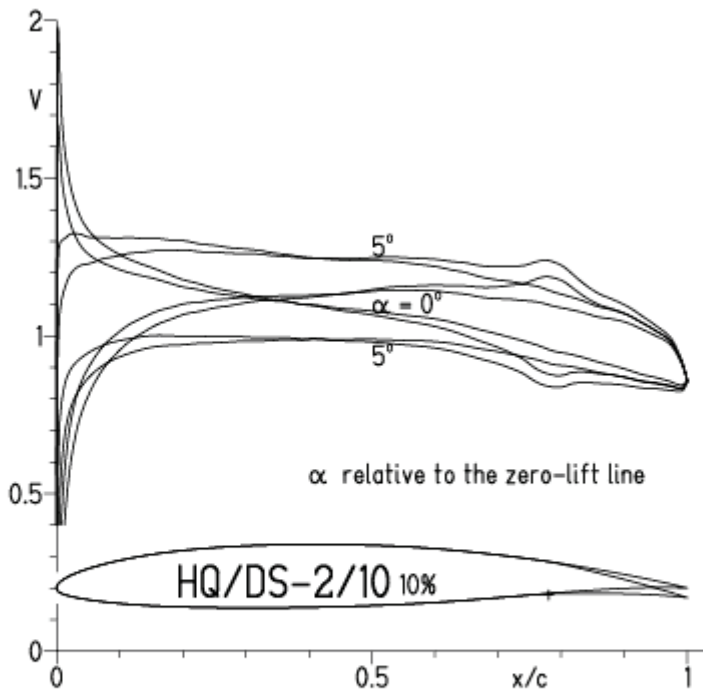


EPPLER 2005 V. 8.5.07 RUN 29.3.12 16:45



HQ/DS-2/10-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 29.3.12 16:59

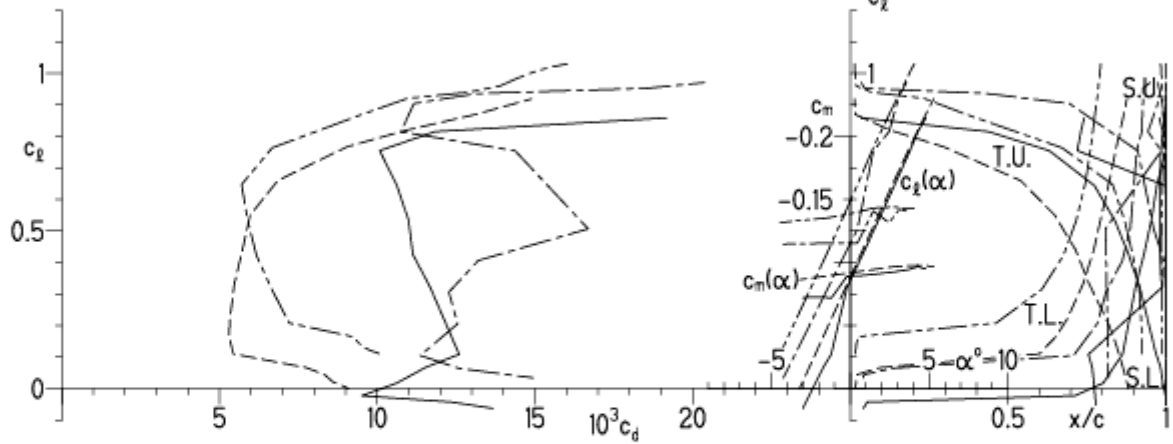


EPPLER 2005 V. 8.5.07 RUN 29.

HQ/DS-2/10 10%

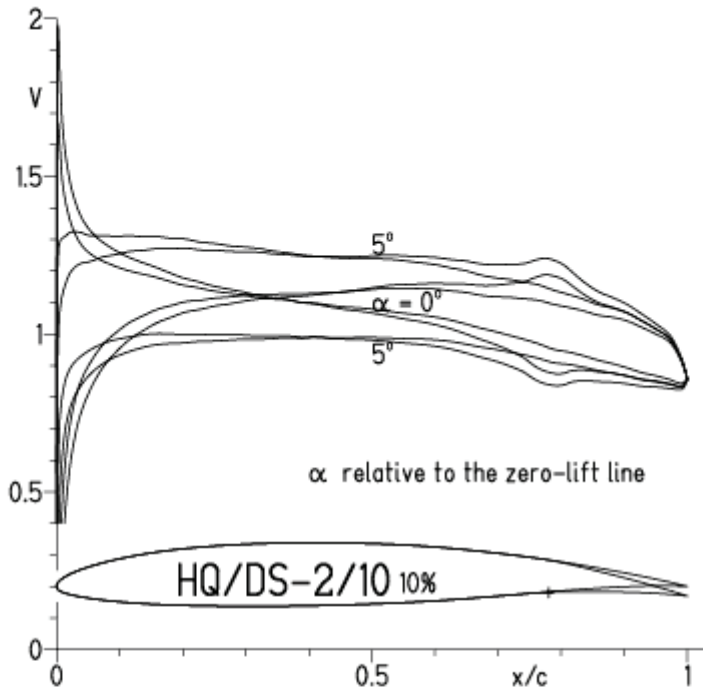
- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.8 \times 10^6 e^N, N=11$
- · - · 22% Flap  $4^\circ, Re = 0.2 \times 10^6 e^N, N=11$
- · - · 22% Flap  $4^\circ, Re = 0.8 \times 10^6 e^N, N=11$

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



**HQ/DS-2/10-Polaren**, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt  
 (optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

EPPLER 2005 V. 8.5.07 RUN 29.3.12 17:20

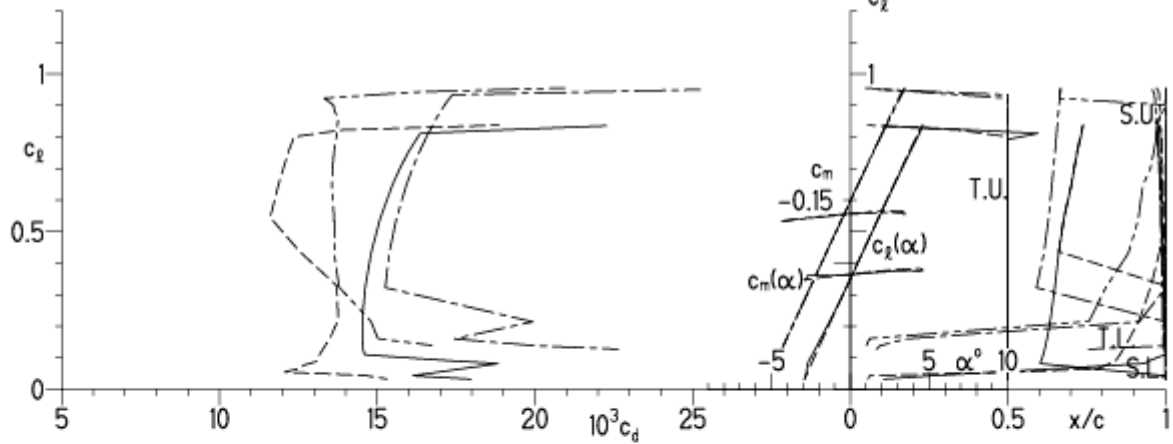


EPPLER 2005 V. 8.5.07 RUN 29.3.12 17:20

**HQ/DS-2/10 10%**

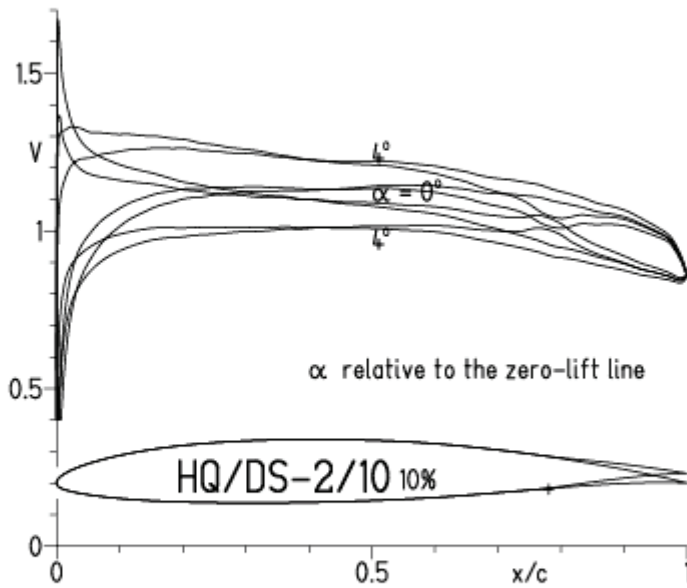
- Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- - - 0.15 × 10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 0.15 × 10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface

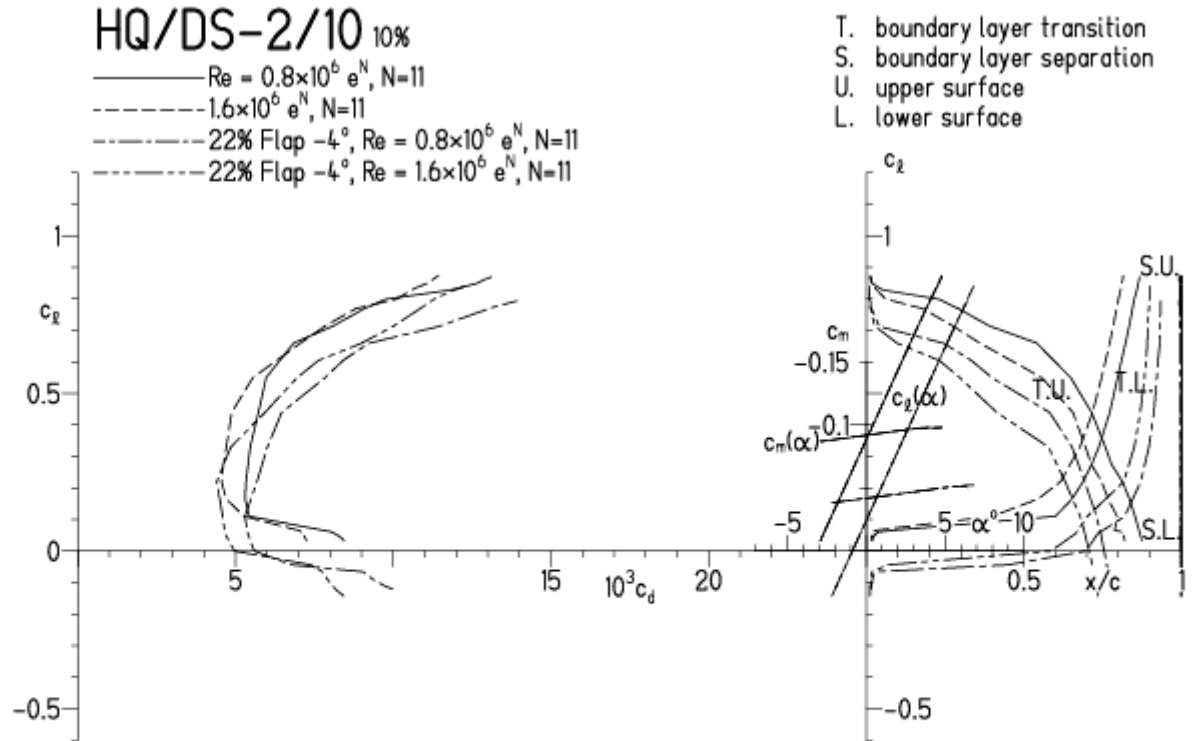


HQ/DS-2/10-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 29.3.12 17:48

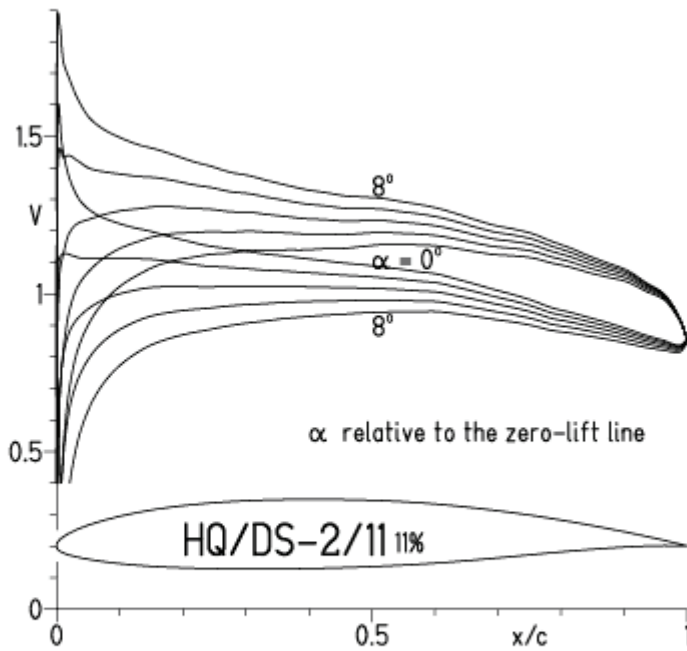


EPPLER 2005 V. 8.5.07 RUN 29.3.12 17:48

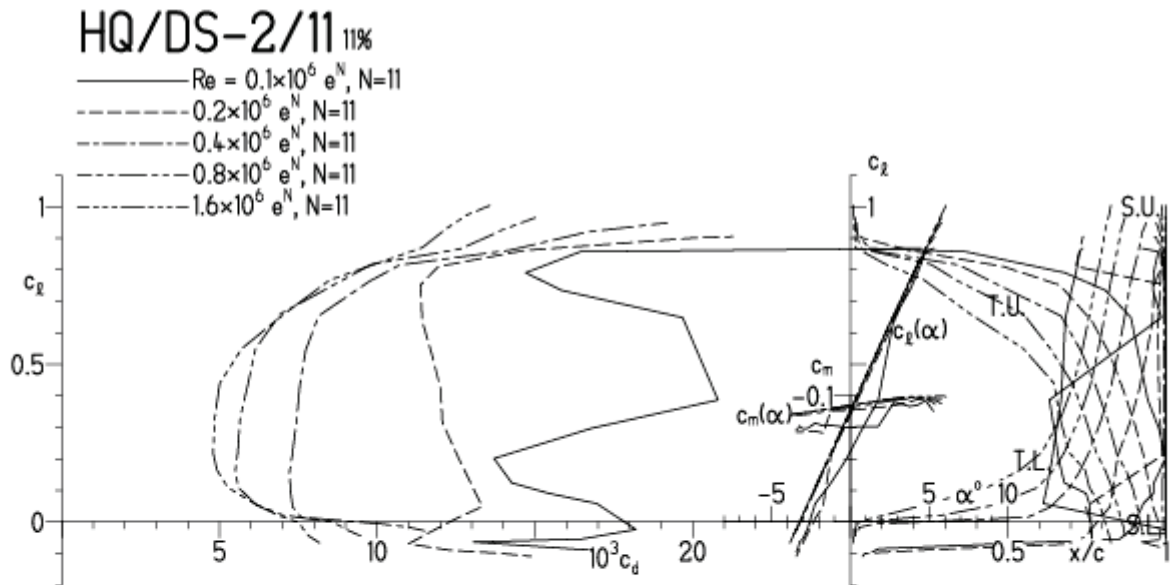


HQ/DS-2/11-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 30.3.12 10:45

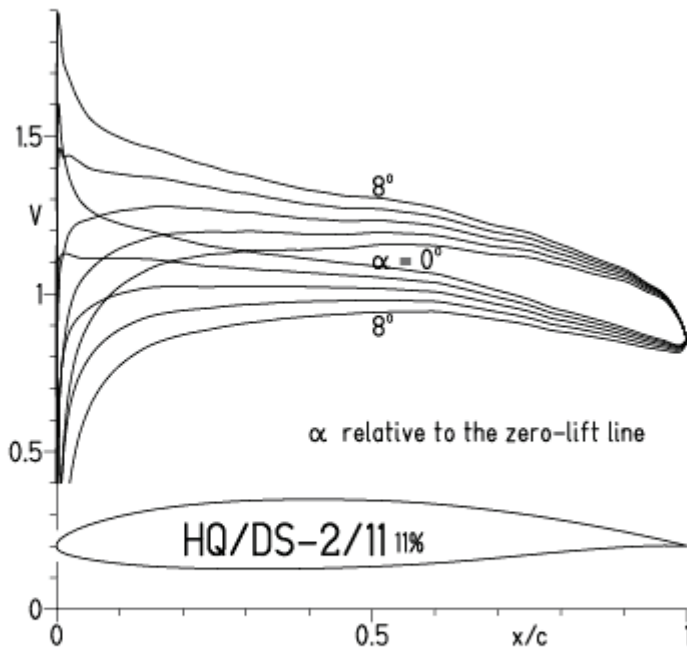


EPPLER 2005 V. 8.5.07 RUN 30.3.12 10:45

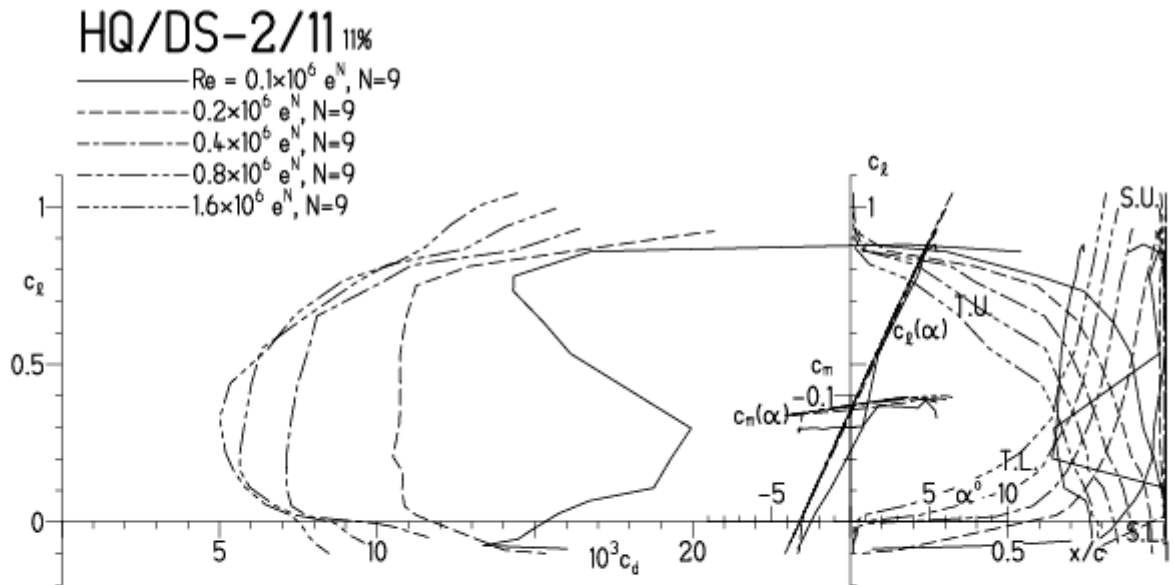


HQ/DS-2/11-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 30.3.12 11:14

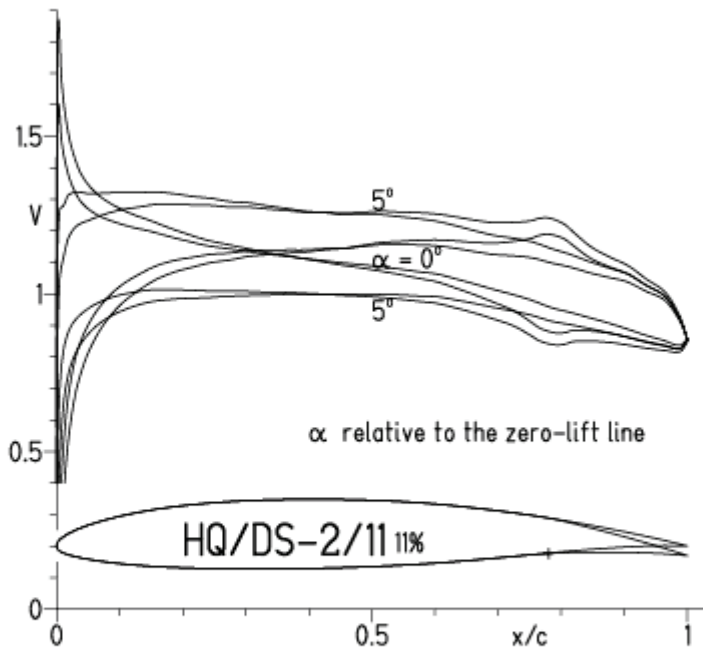


EPPLER 2005 V. 8.5.07 RUN 30.3.12 11:14



HQ/DS-2/11-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 30.3.12 11:42

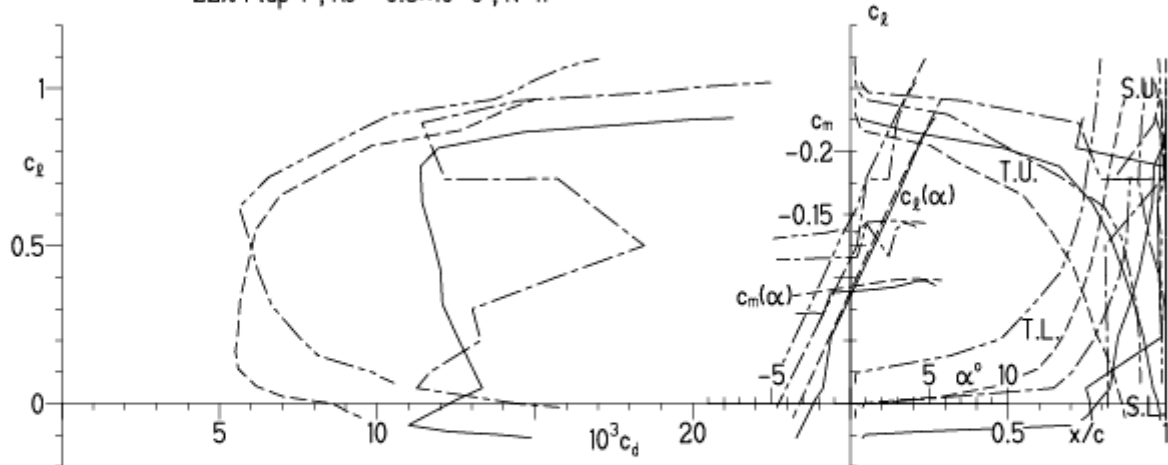


EPPLER 2005 V. 8.5.07 RUN 30.3.12 11:42

HQ/DS-2/11 11%

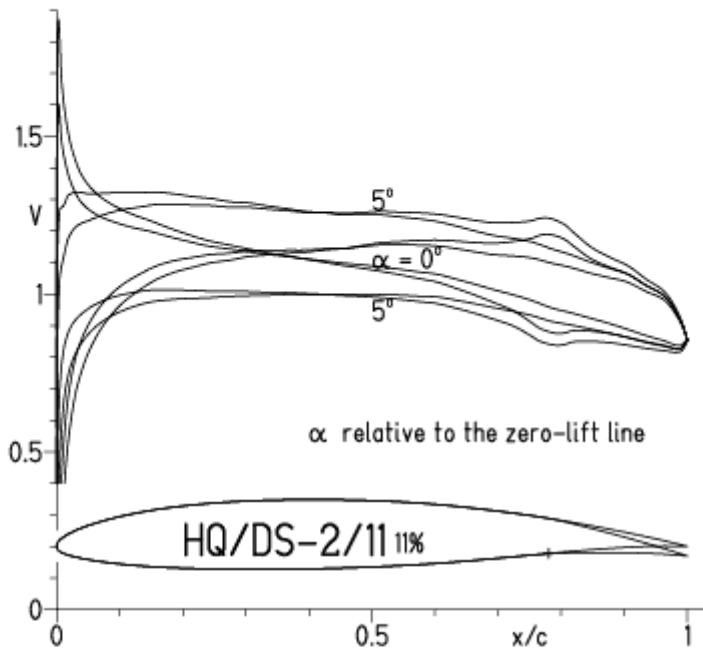
- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.8 \times 10^6 e^N, N=11$
- · - · 22% Flap  $4^\circ, Re = 0.2 \times 10^6 e^N, N=11$
- · - · 22% Flap  $4^\circ, Re = 0.8 \times 10^6 e^N, N=11$

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



**HQ/DS-2/11-Polaren**, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt  
 (optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

EPPLER 2005 V. 8.5.07 RUN 30.3.12 12:00

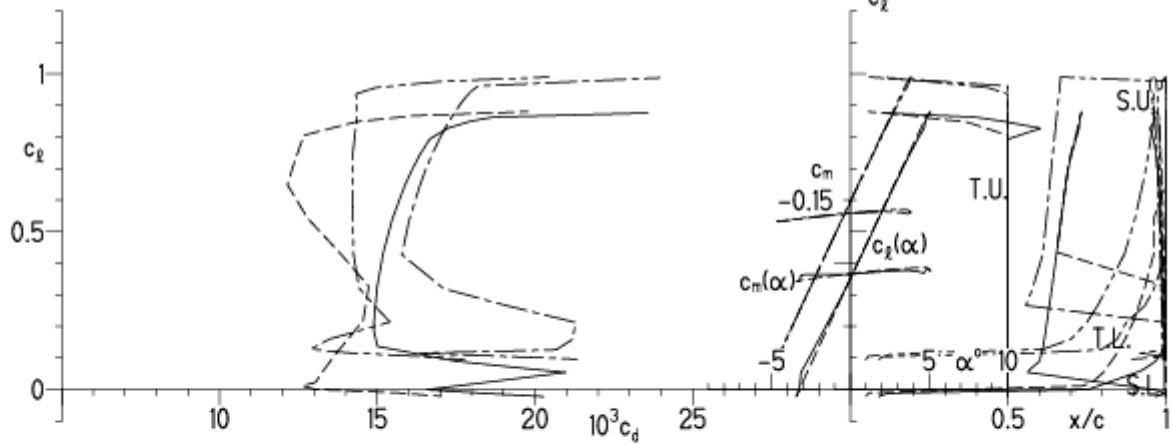


EPPLER 2005 V. 8.5.07 RUN 30.3.12 12:00

**HQ/DS-2/11 11%**

- Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- - - 0.15×10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 0.15×10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11

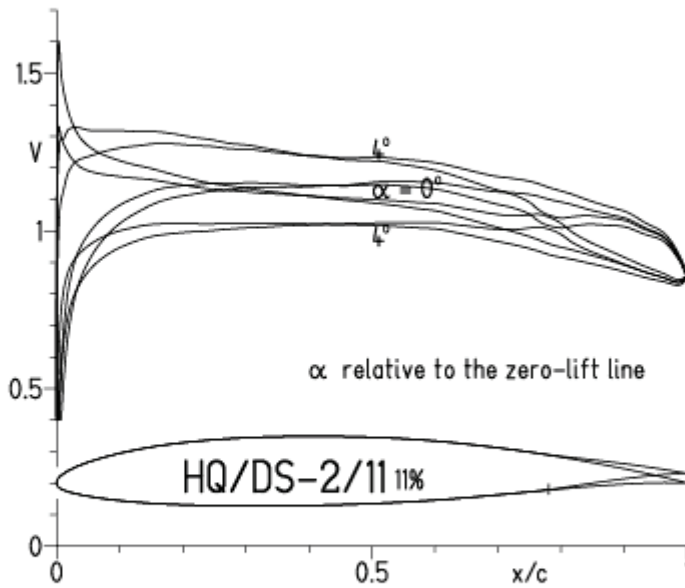
- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



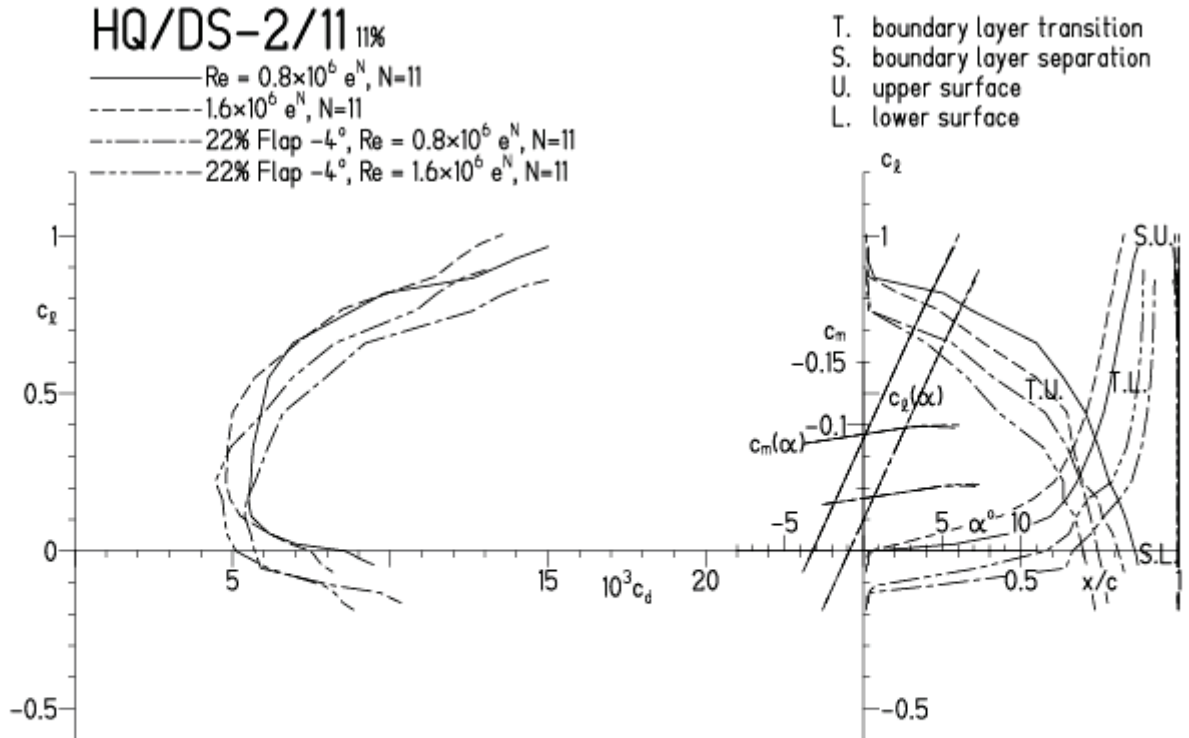


HQ/DS-2/11-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 30.3.12 12:28

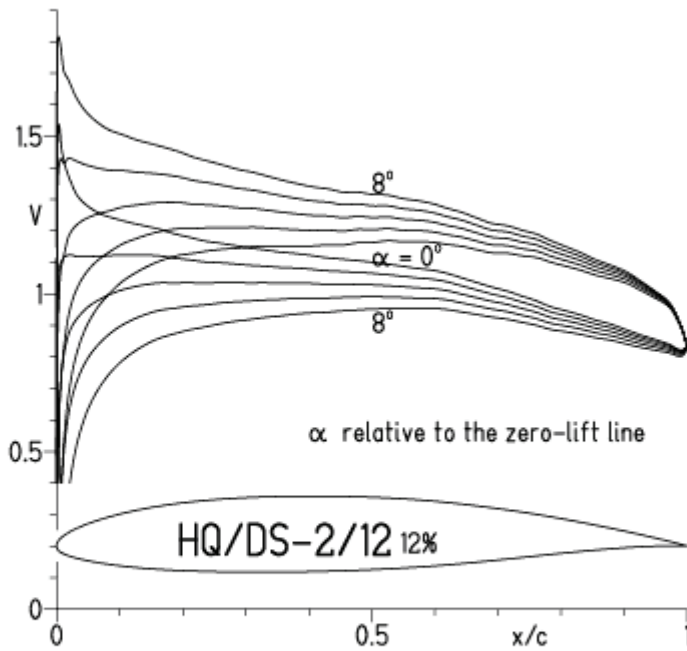


EPPLER 2005 V. 8.5.07 RUN 30.3.12 12:28

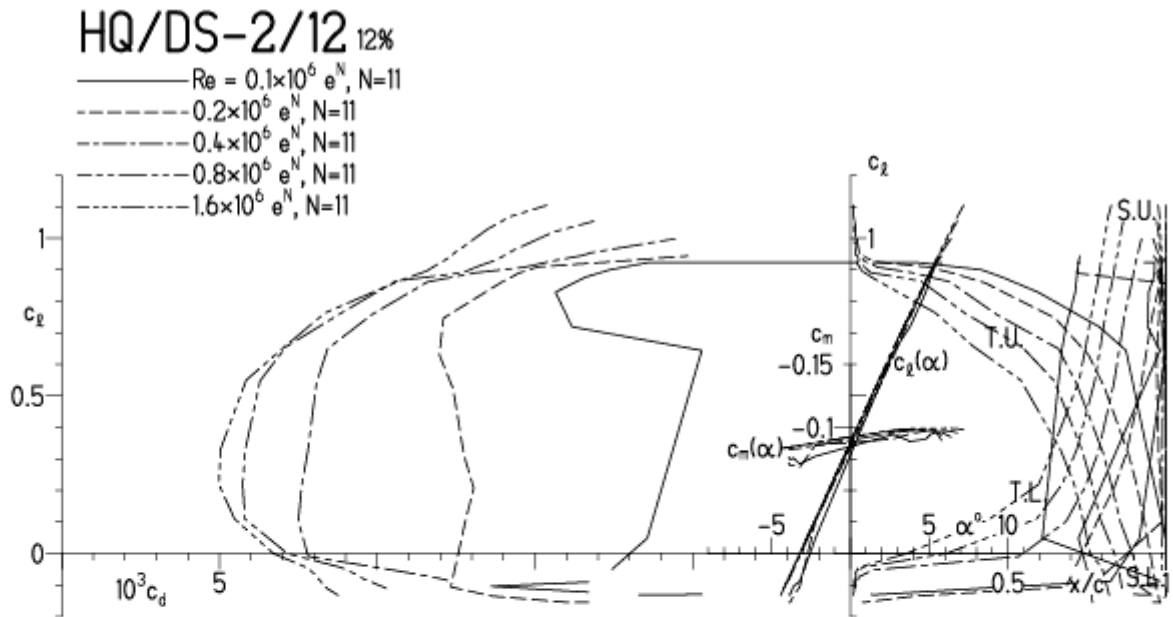


HQ/DS-2/12-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 30.3.12 13:01

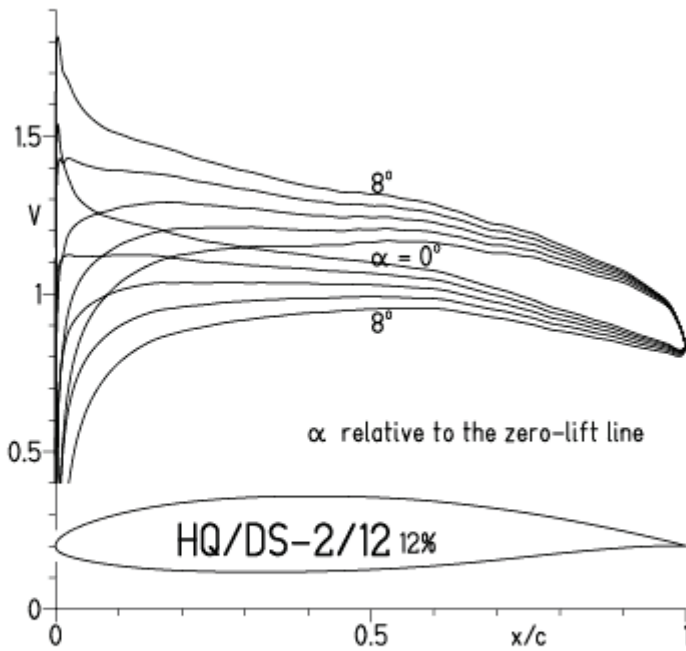


EPPLER 2005 V. 8.5.07 RUN 30.3.12 13:01

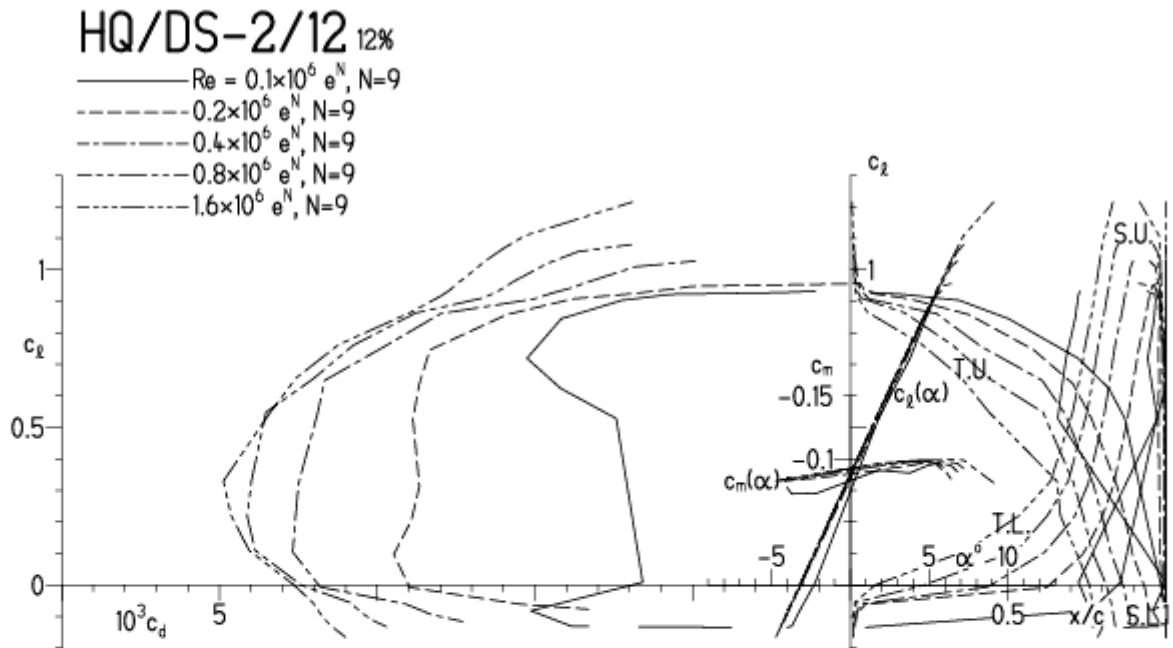


HQ/DS-2/12-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 30.3.12 17:03

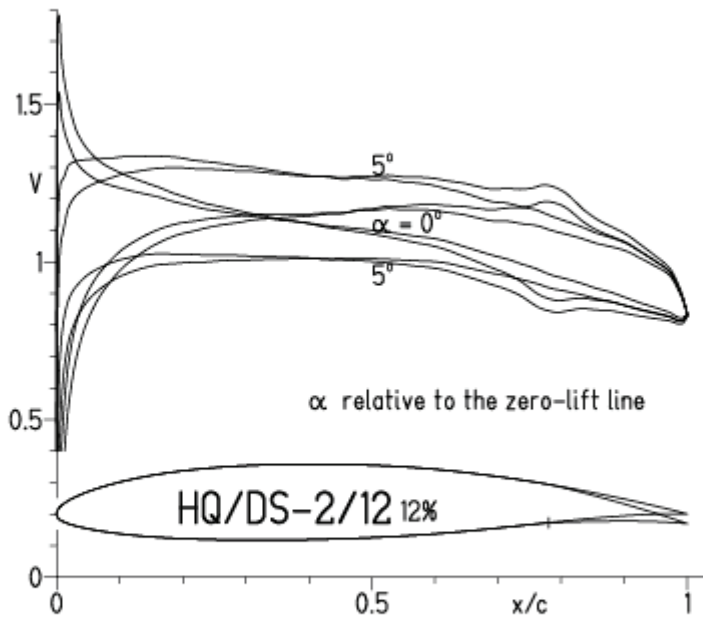


EPPLER 2005 V. 8.5.07 RUN 30.3.12 17:03



HQ/DS-2/12-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 31.3.12 17:21

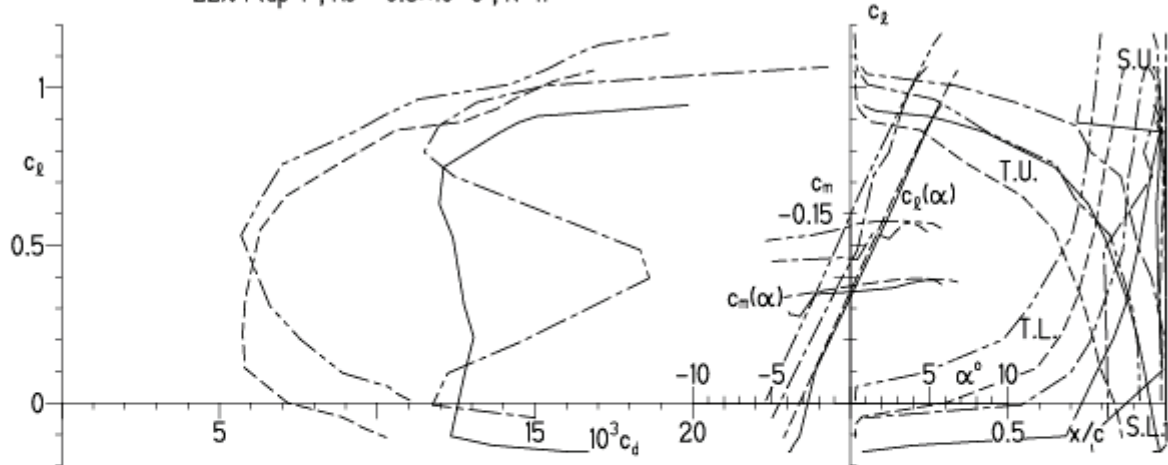


EPPLER 2005 V. 8.5.07 RUN 31.3.12

HQ/DS-2/12 12%

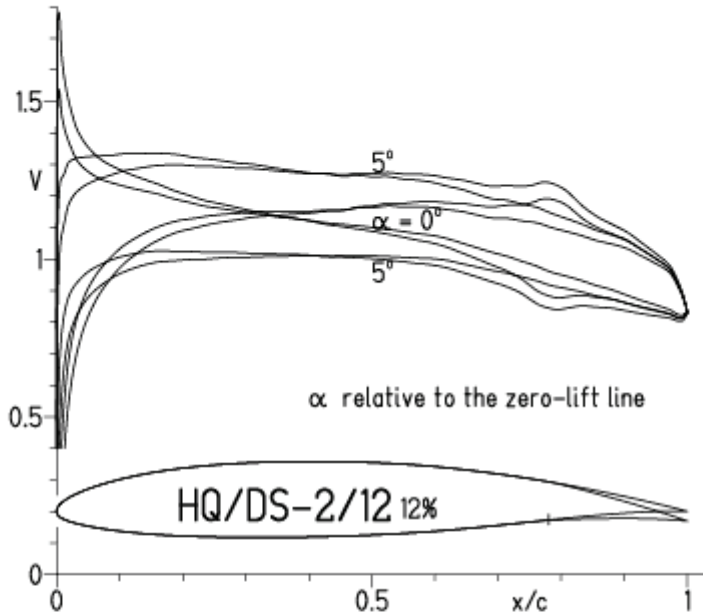
- $Re = 0.2 \times 10^6 e^N, N=11$
- - -  $0.8 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } 4^\circ, Re = 0.2 \times 10^6 e^N, N=11$
- · -  $22\% \text{ Flap } 4^\circ, Re = 0.8 \times 10^6 e^N, N=11$

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface



**HQ/DS-2/12-Polaren**, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt  
(optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

EPPLER 2005 V. 8.5.07 RUN 31.3.12 17:48

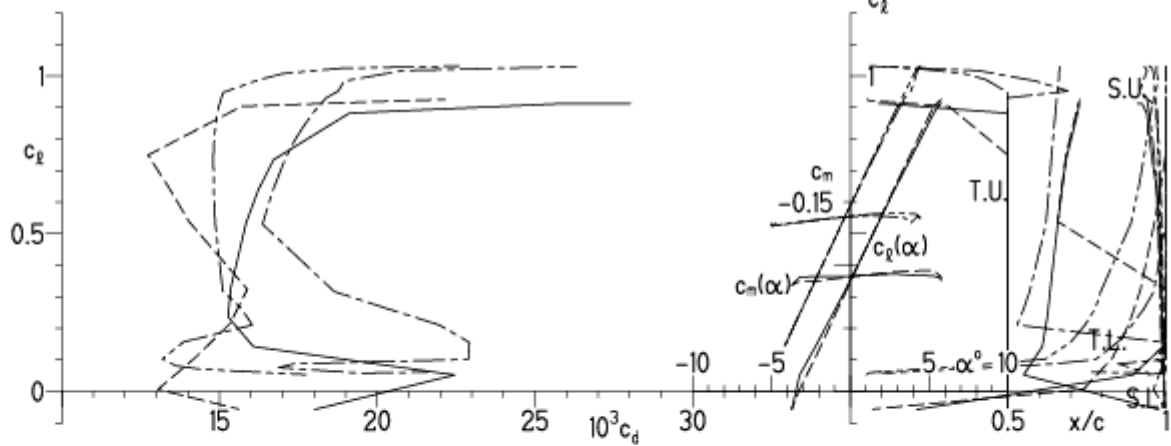


EPPLER 2005 V. 8.5.07 RUN 31.3.12 17:48

**HQ/DS-2/12 12%**

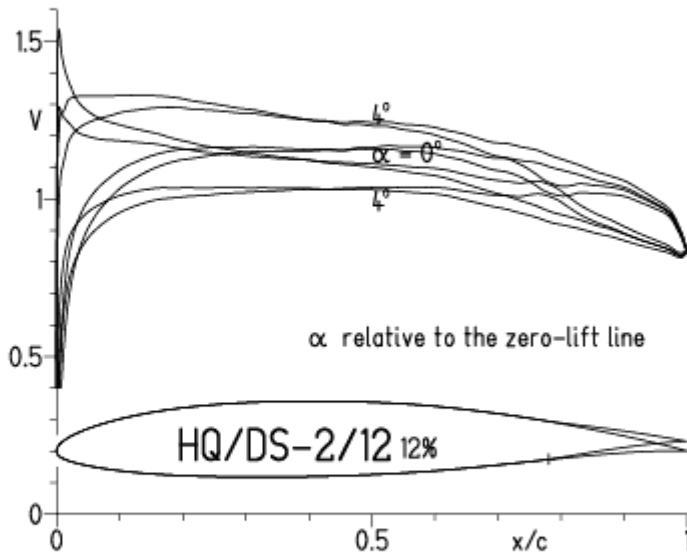
- $Re = 75\,000$ , Turb. upper 50%  $e^N$ ,  $N=11$
- - -  $0.15 \times 10^6$ , Turb. upper 50%  $e^N$ ,  $N=11$
- · - · 22% Flap  $4^\circ$ ,  $Re = 75\,000$ , Turb. upper 50%  $e^N$ ,  $N=11$
- · - · 22% Flap  $4^\circ$ ,  $Re = 0.15 \times 10^6$ , Turb. upper 50%  $e^N$ ,  $N=11$

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface

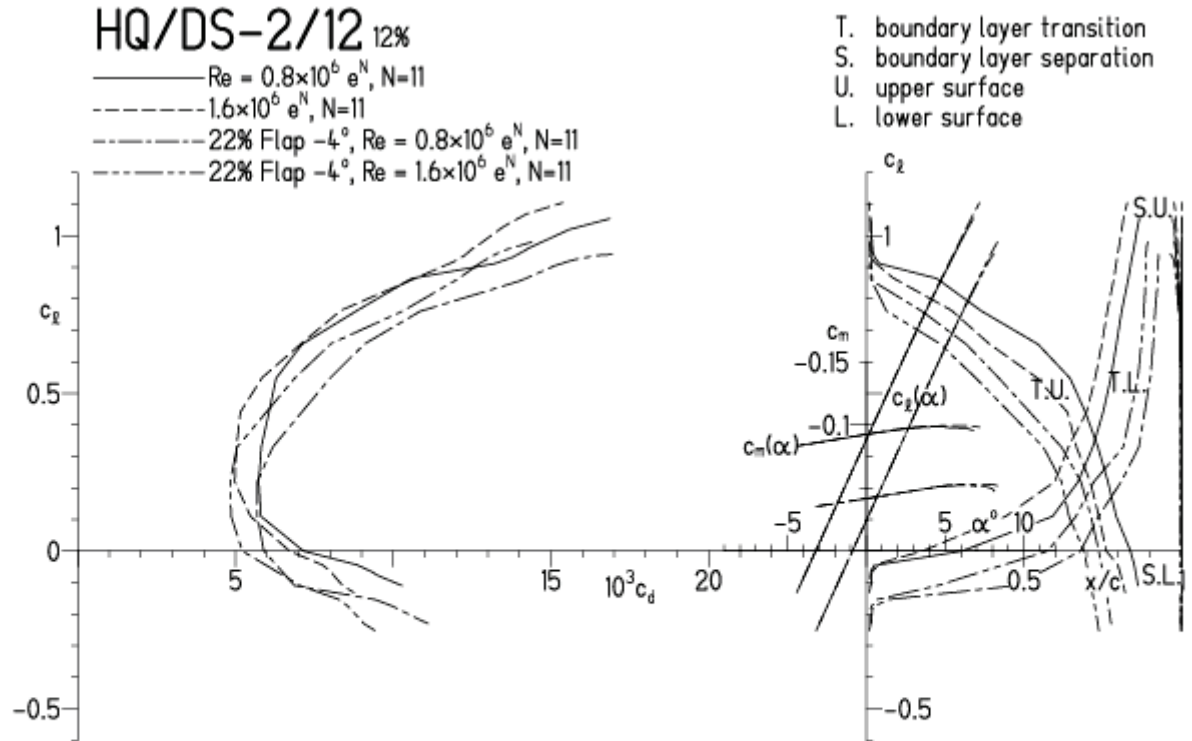


HQ/DS-2/12-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 31.3.12 18:19

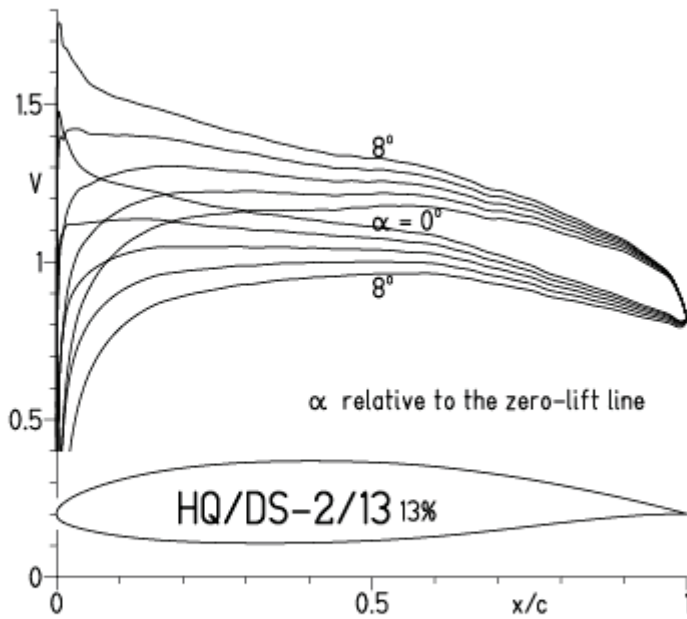


EPPLER 2005 V. 8.5.07 RUN 31.3.12 18:19

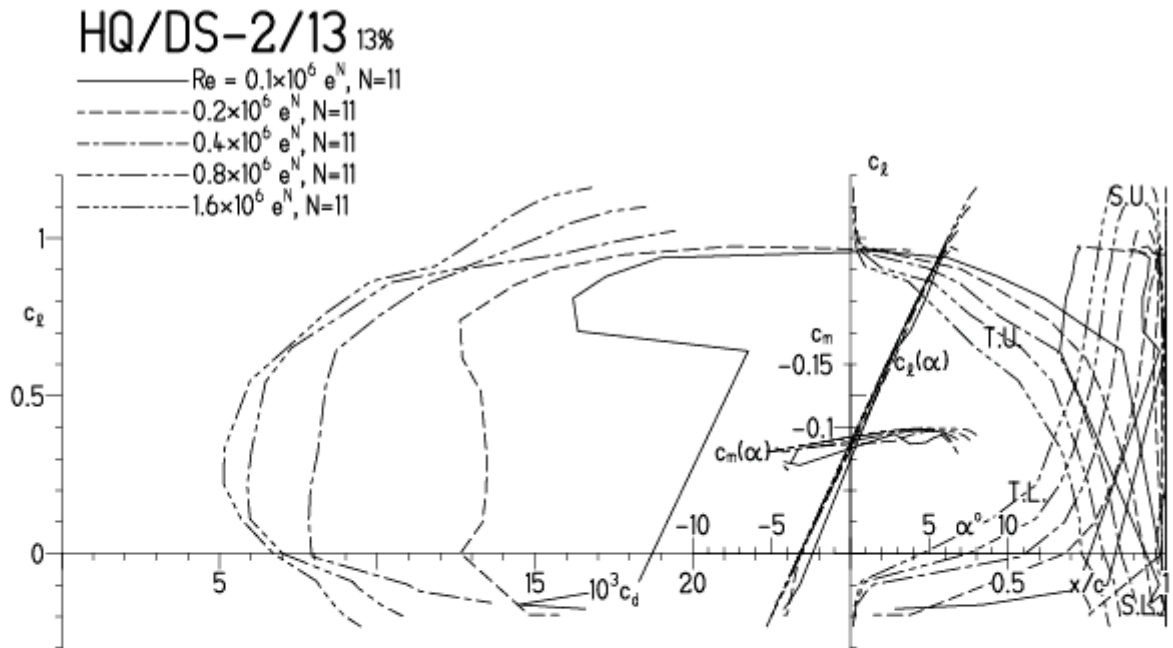


HQ/DS-2/13-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 31.3.12 18:38

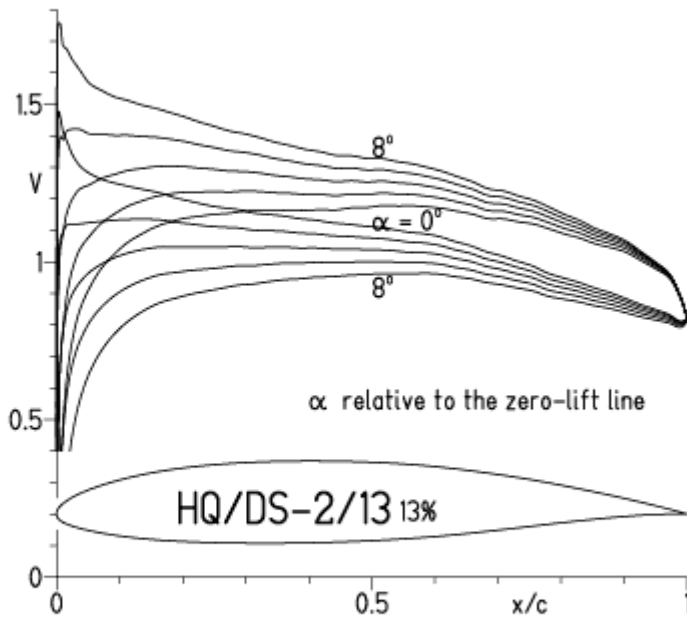


EPPLER 2005 V. 8.5.07 RUN 31.3.12 18:38

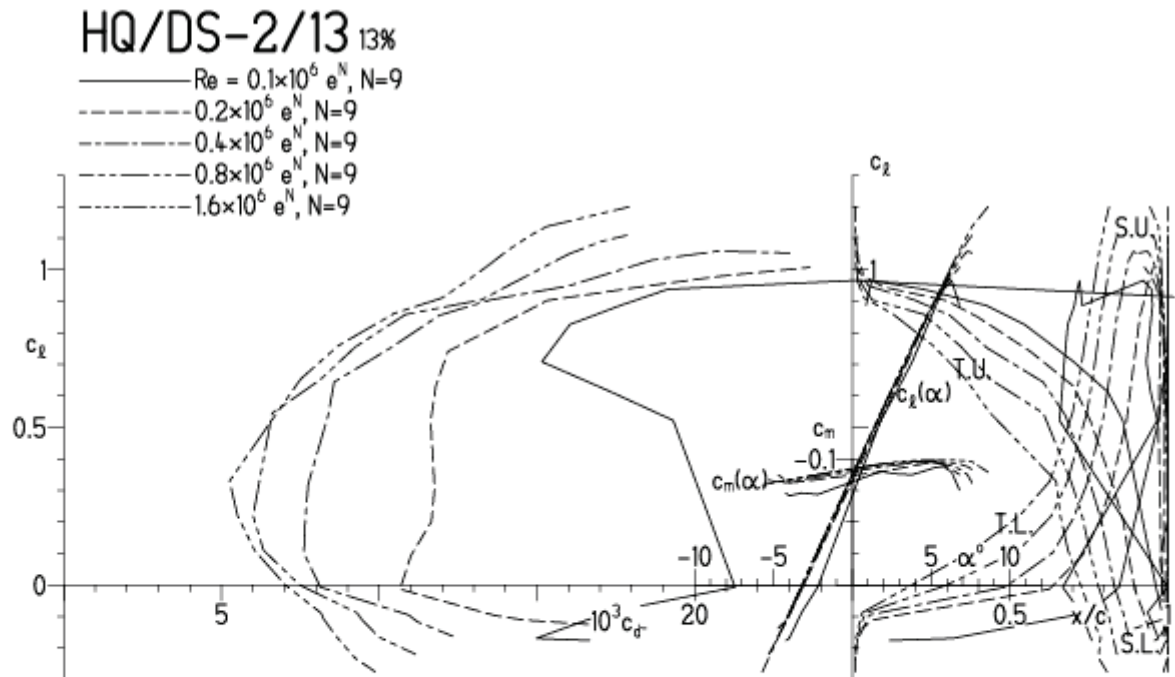


HQ/DS-2/13-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 31.3.12 18:46



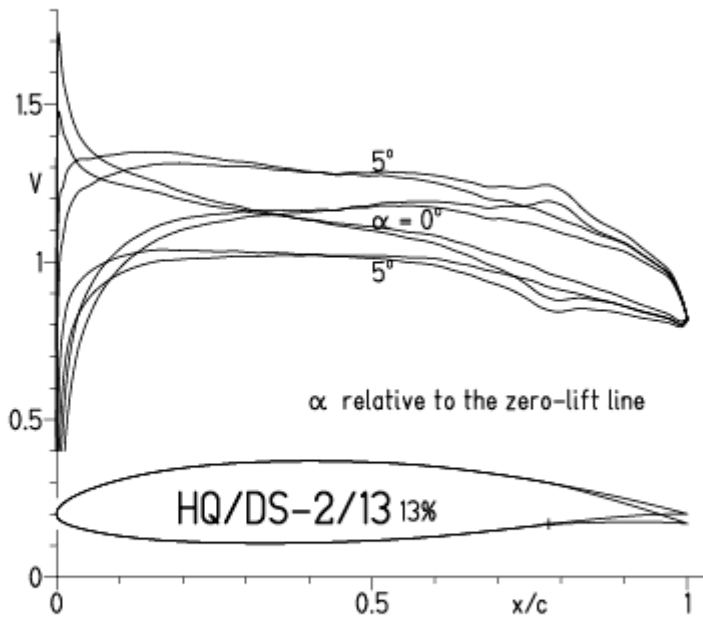
EPPLER 2005 V. 8.5.07 RUN 31.3.12 18:46



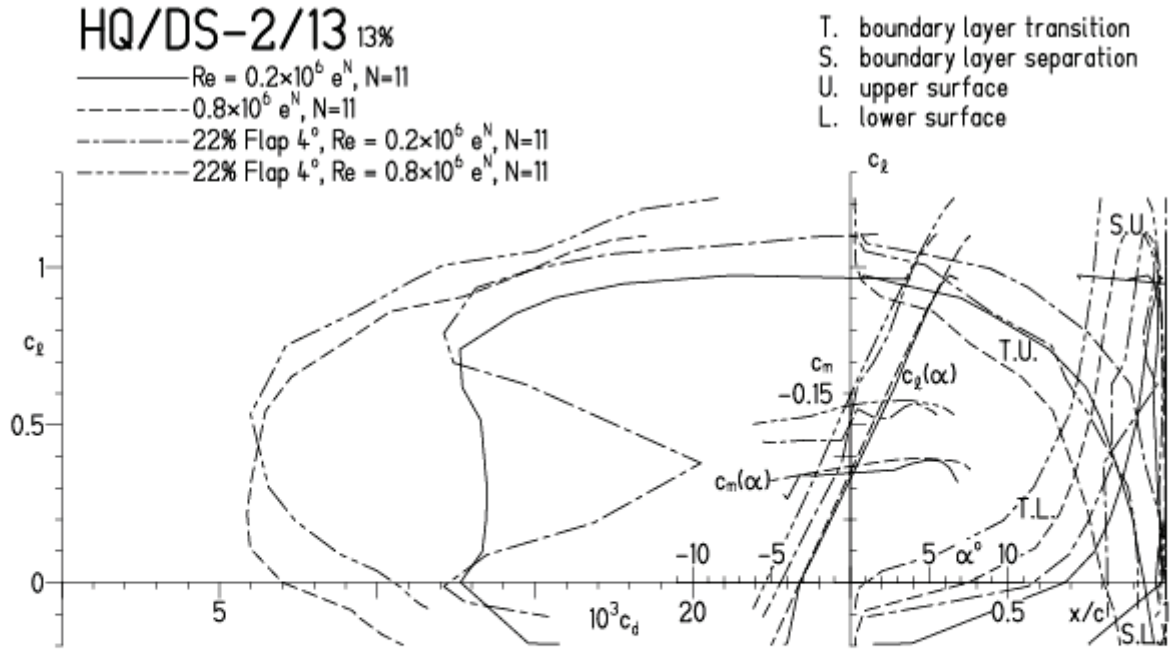


HQ/DS-2/13-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.A.12 12:01

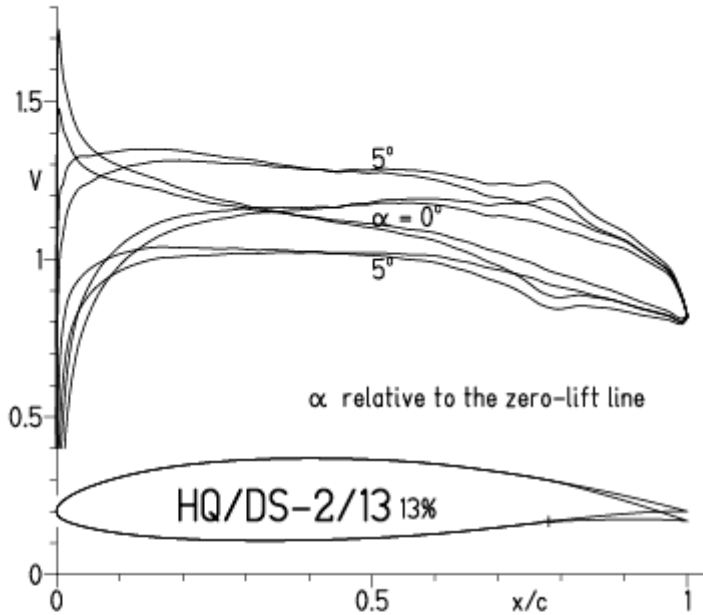


EPPLER 2005 V. 8.5.07 RUN 2.A.12 12:01



**HQ/DS-2/13-Polaren**, N=9, mit 4° Wölbklappenausschlag, Turbulatoreffekt  
 (optimale Turbulatorposition bei 45 – 55 % der Profiltiefe für niedrige Re-Zahlen)

EPPLER 2005 V. 8.5.07 RUN 2.4.12 12:31

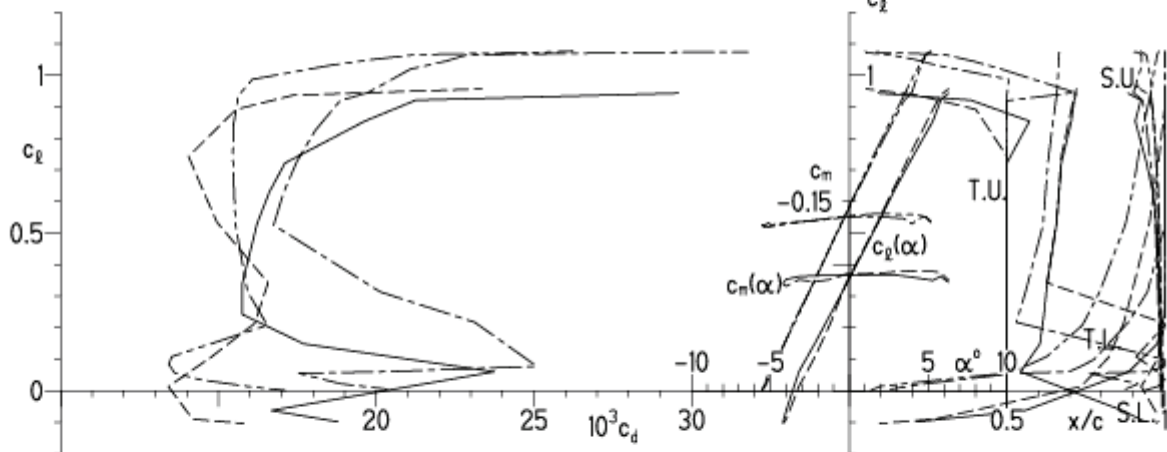


EPPLER 2005 V. 8.5.07 RUN 2.4.12 12:

**HQ/DS-2/13 13%**

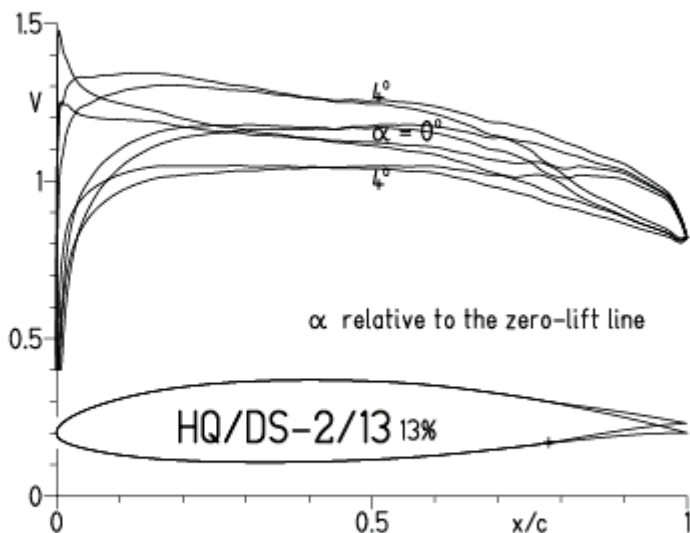
- Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- - - 0.15×10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 75 000, Turb. upper 50% e<sup>N</sup>, N=11
- · - 22% Flap 4°, Re = 0.15×10<sup>6</sup>, Turb. upper 50% e<sup>N</sup>, N=11

- T. boundary layer transition
- S. boundary layer separation
- U. upper surface
- L. lower surface

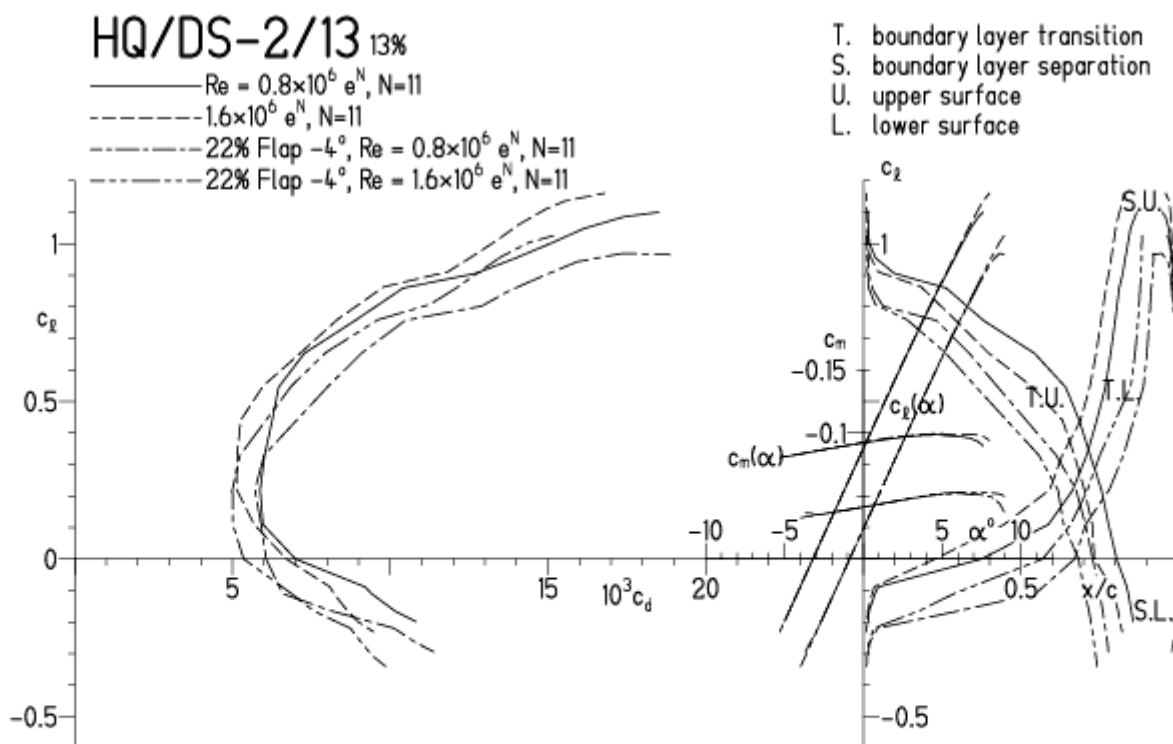


HQ/DS-2/13-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.1.12 12:39

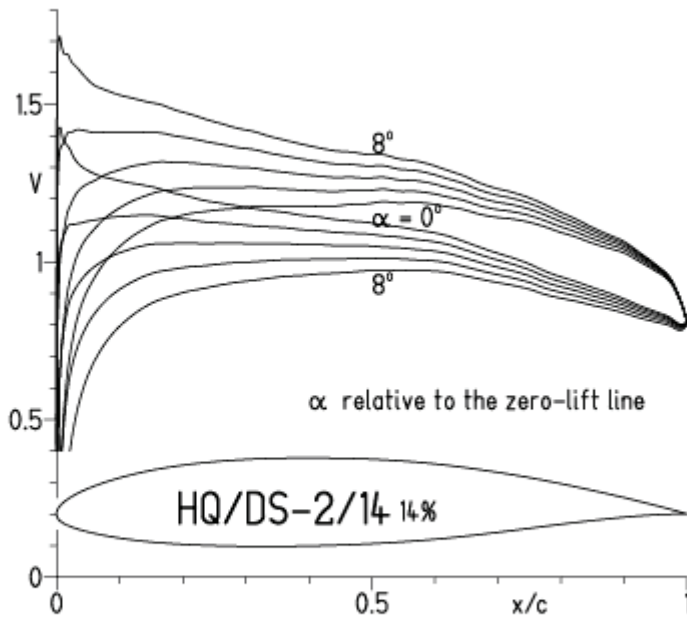


EPPLER 2005 V. 8.5.07 RUN 2.1.12 12:39



HQ/DS-2/14-Polaren, N=11

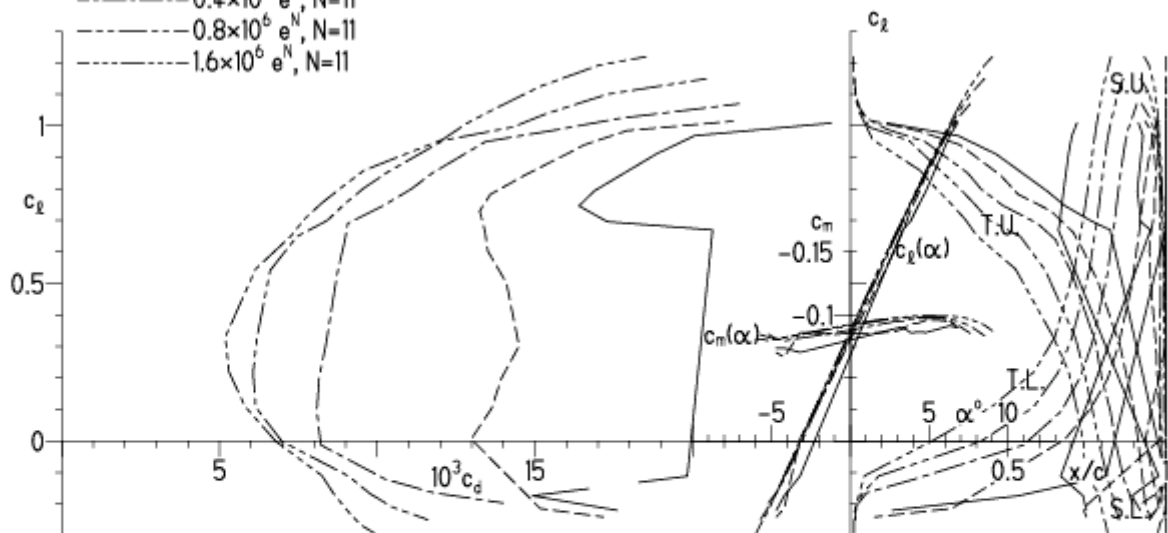
EPPLER 2005 V. 8.5.07 RUN 2.A.12 13:23



EPPLER 2005 V. 8.5.07 RUN 2.A.12 1

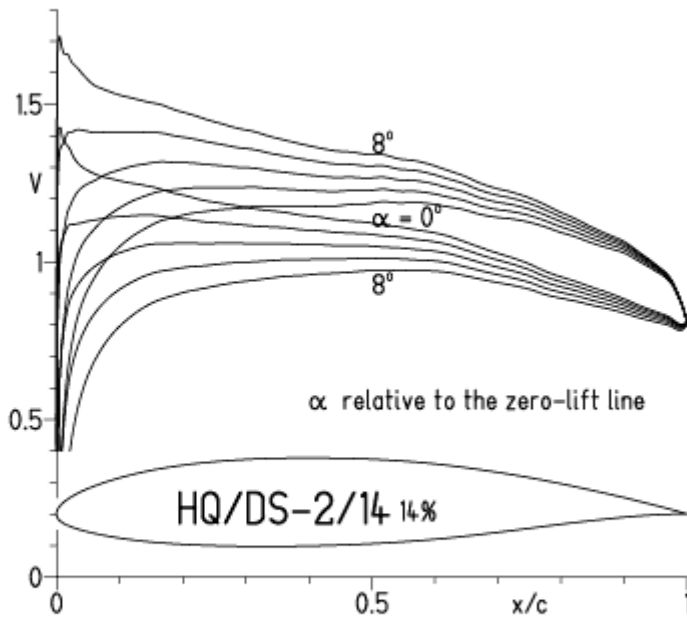
HQ/DS-2/14 14%

- $Re = 0.1 \times 10^6 e^N, N=11$
- - -  $0.2 \times 10^6 e^N, N=11$
- · -  $0.4 \times 10^6 e^N, N=11$
- · -  $0.8 \times 10^6 e^N, N=11$
- · -  $1.6 \times 10^6 e^N, N=11$

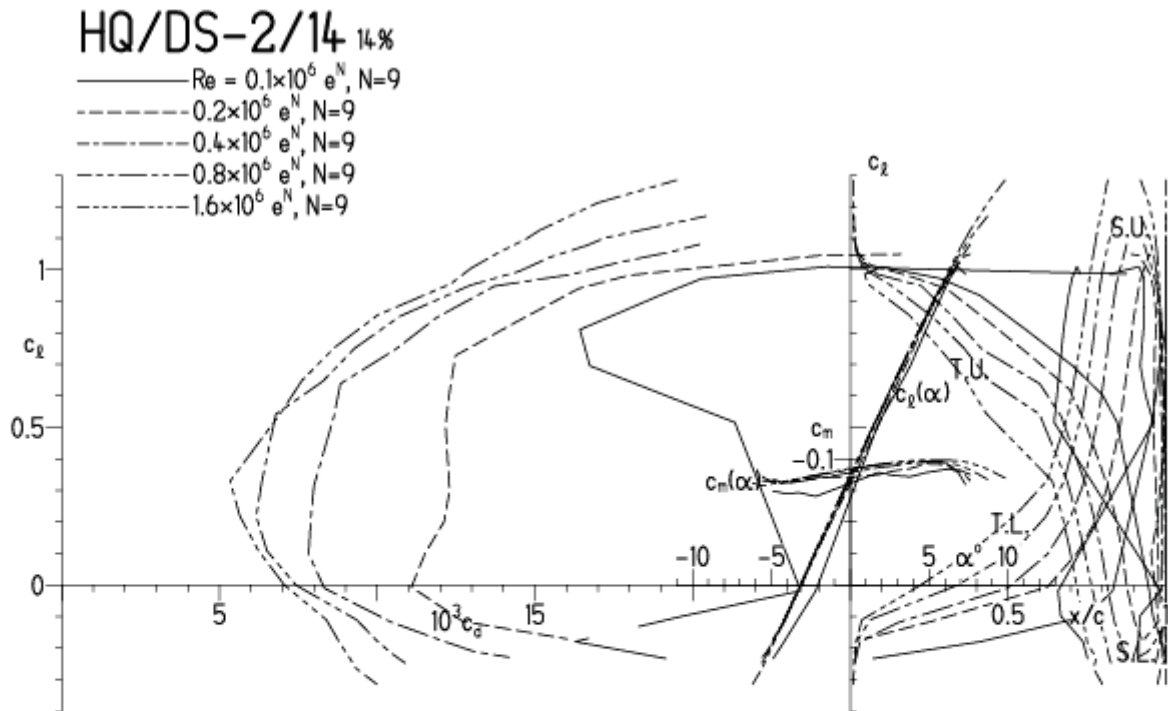


HQ/DS-2/14-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 2.A.12 13:12

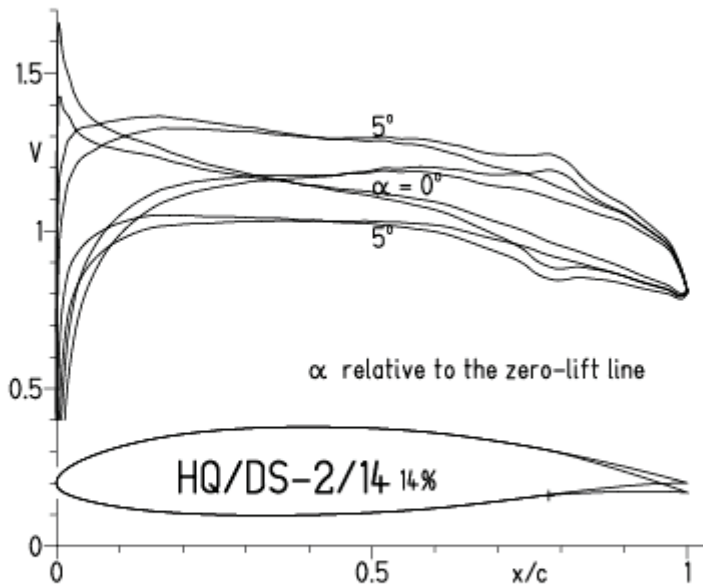


EPPLER 2005 V. 8.5.07 RUN 2.A.12 13:12

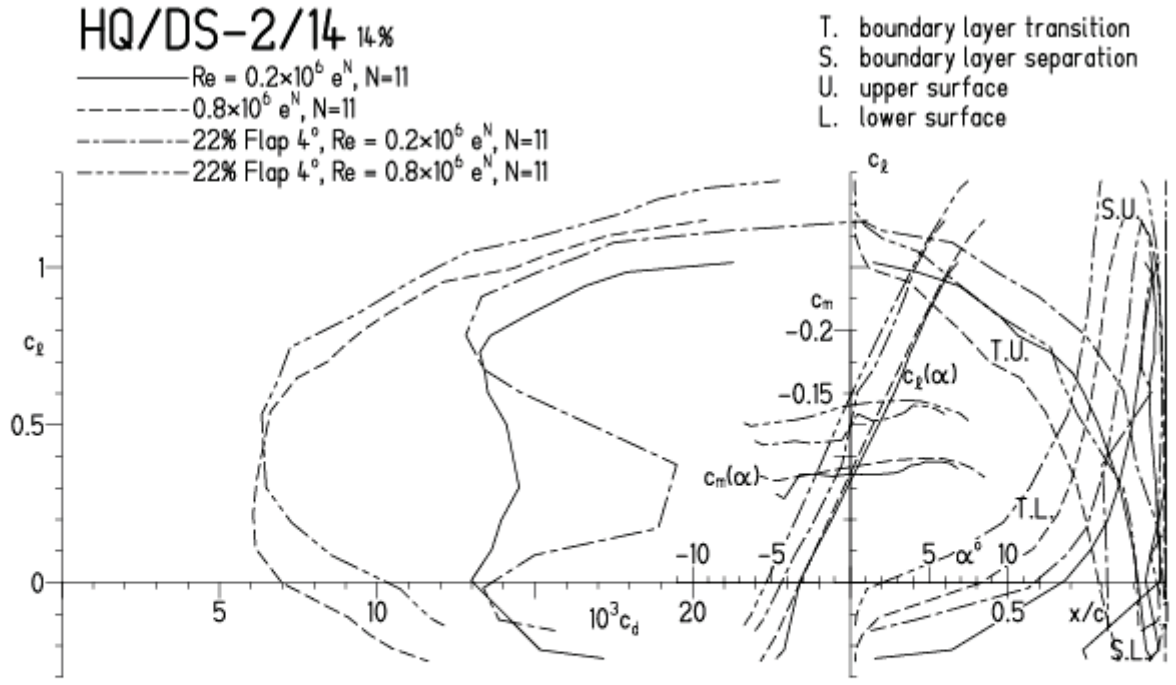


HQ/DS-2/14-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.1.12 16:38

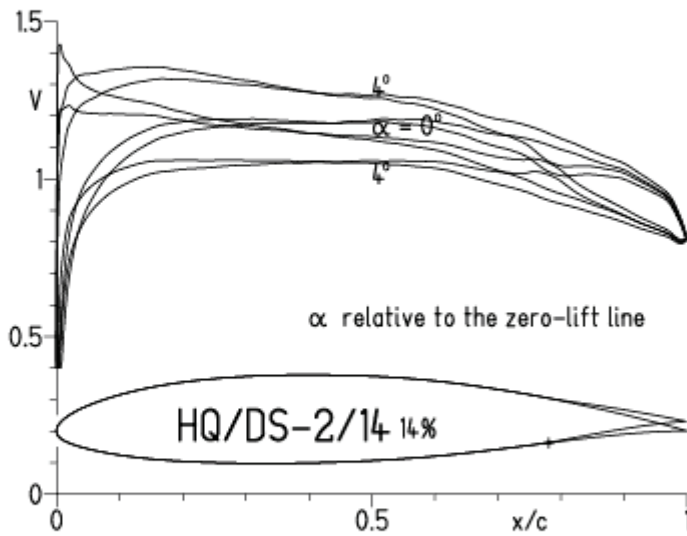


EPPLER 2005 V. 8.5.07 RUN 2.1.12 16:38

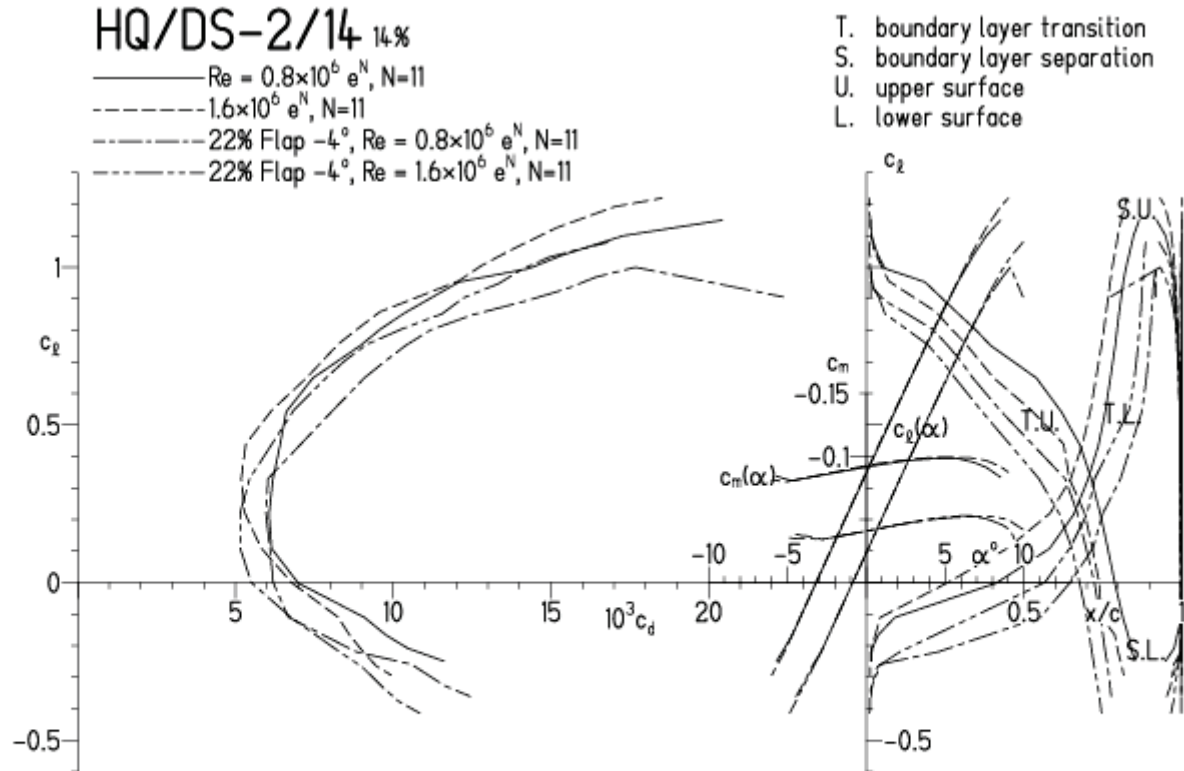


HQ/DS-2/14-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:07

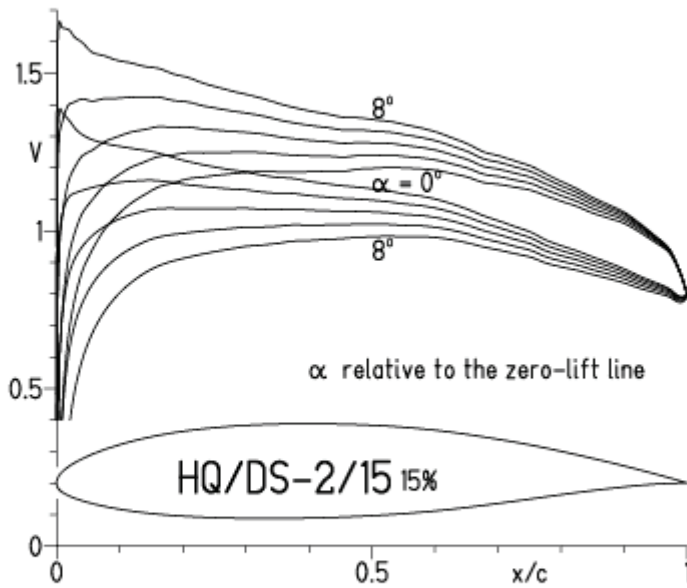


EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:07

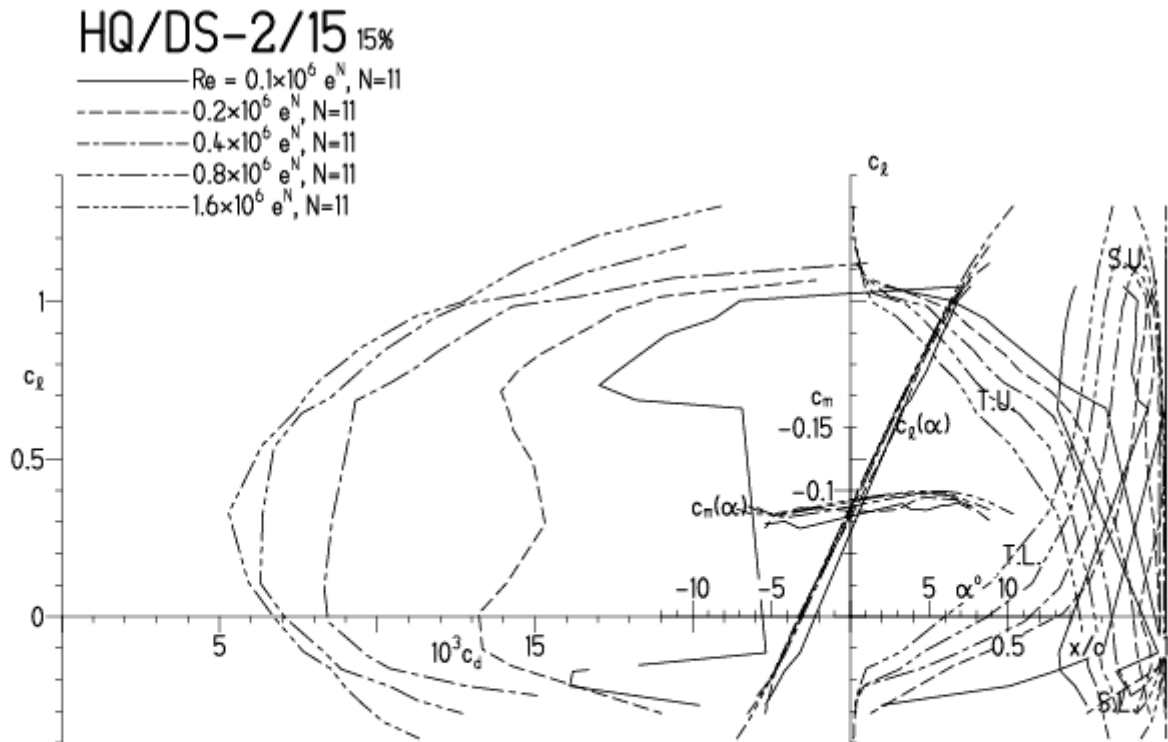


HQ/DS-2/15-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:26



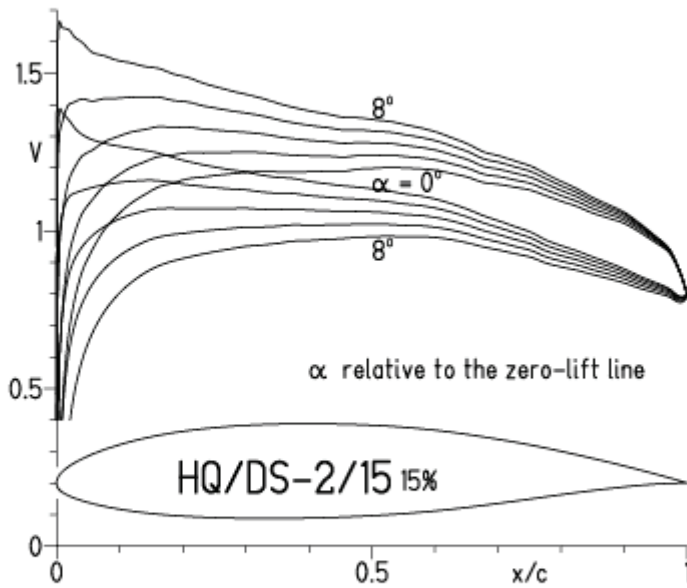
EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:26



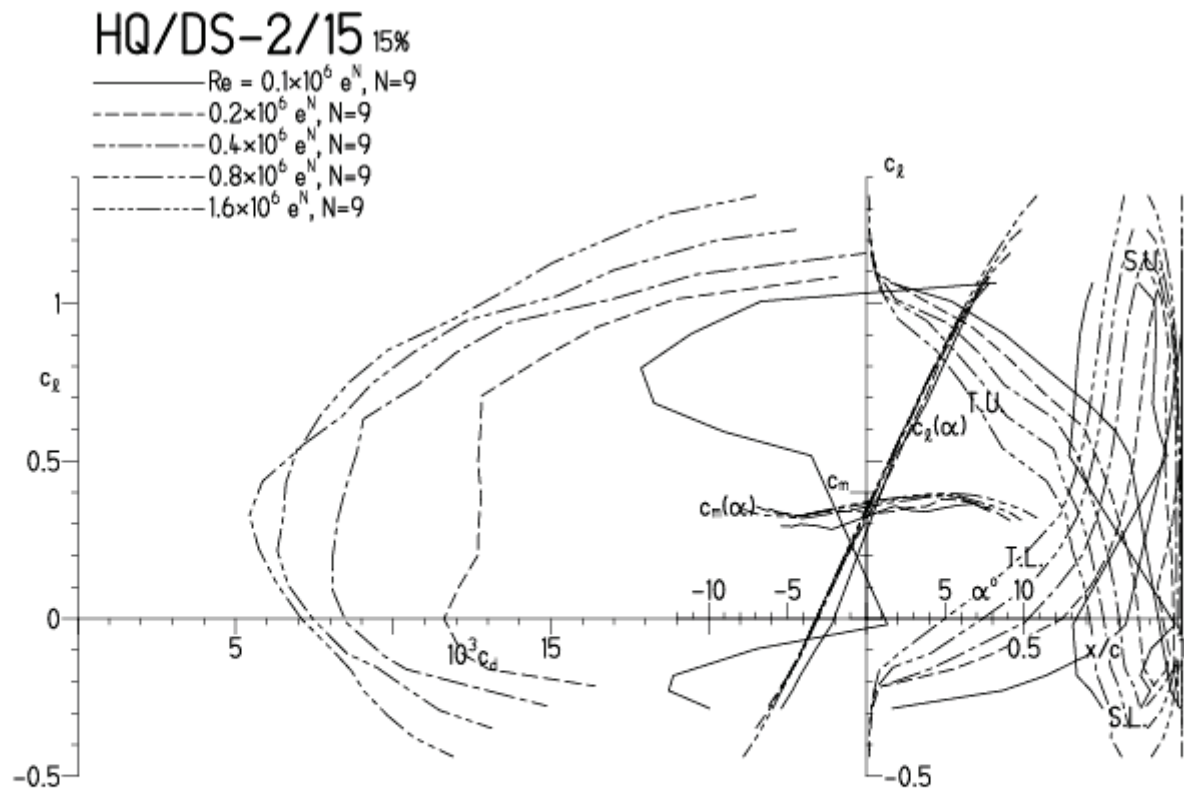


HQ/DS-2/15-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:35

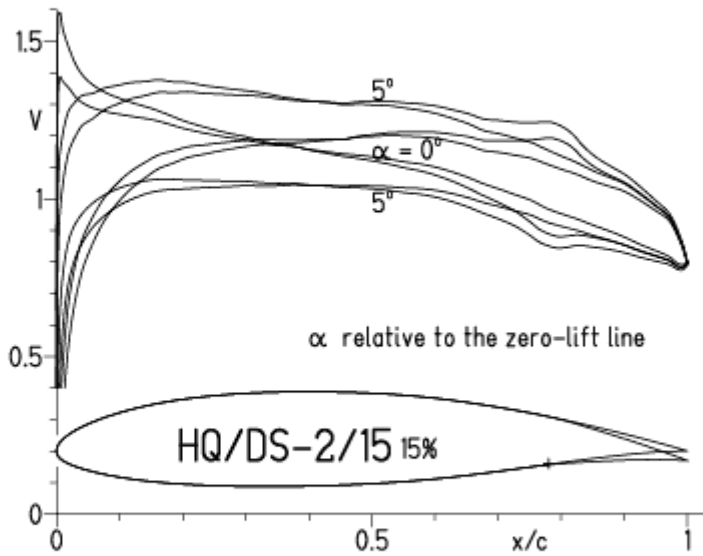


EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:35

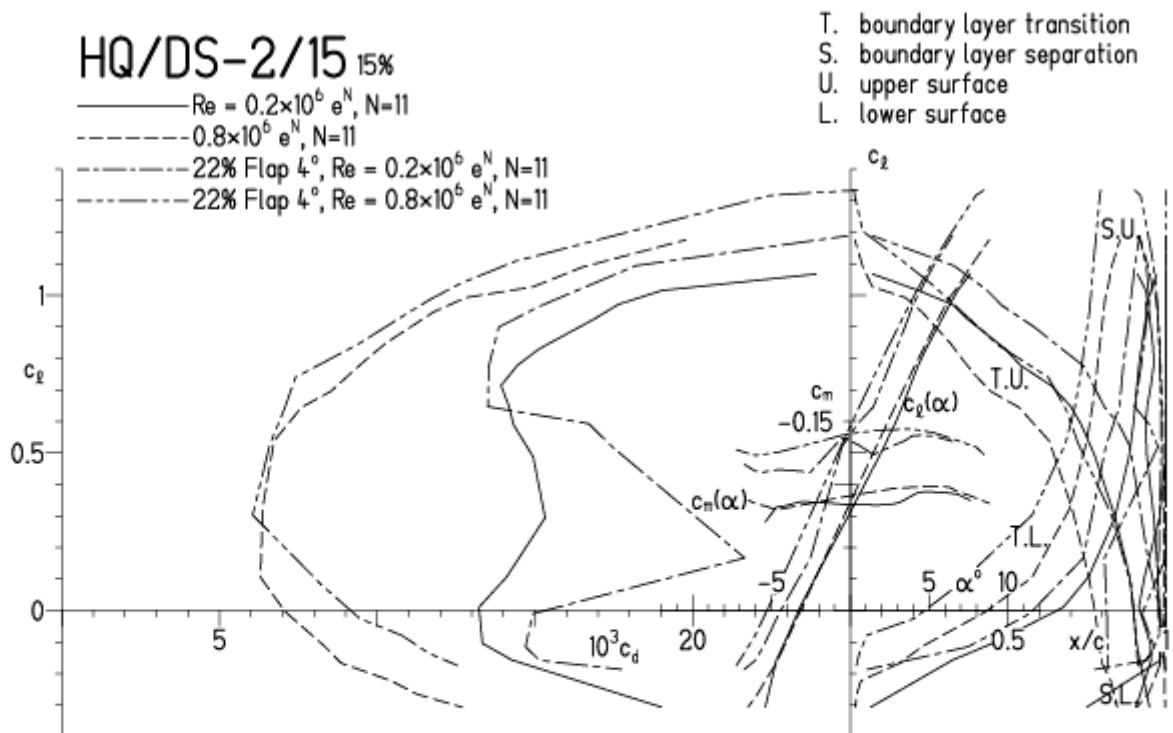


HQ/DS-2/15-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:42

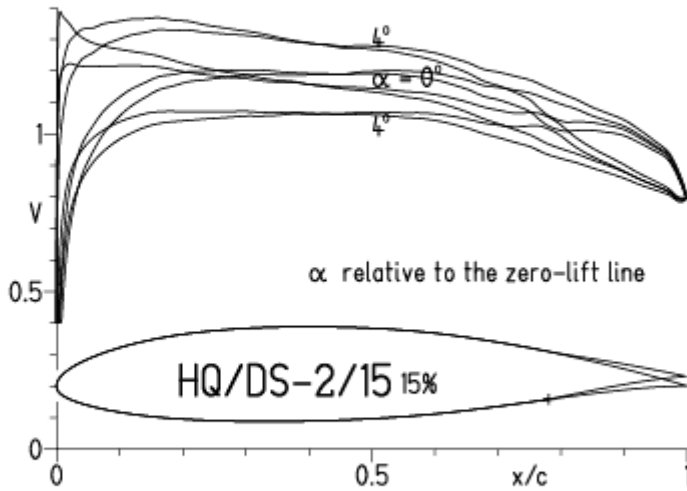


EPPLER 2005 V. 8.5.07 RUN 2.A.12 17:42

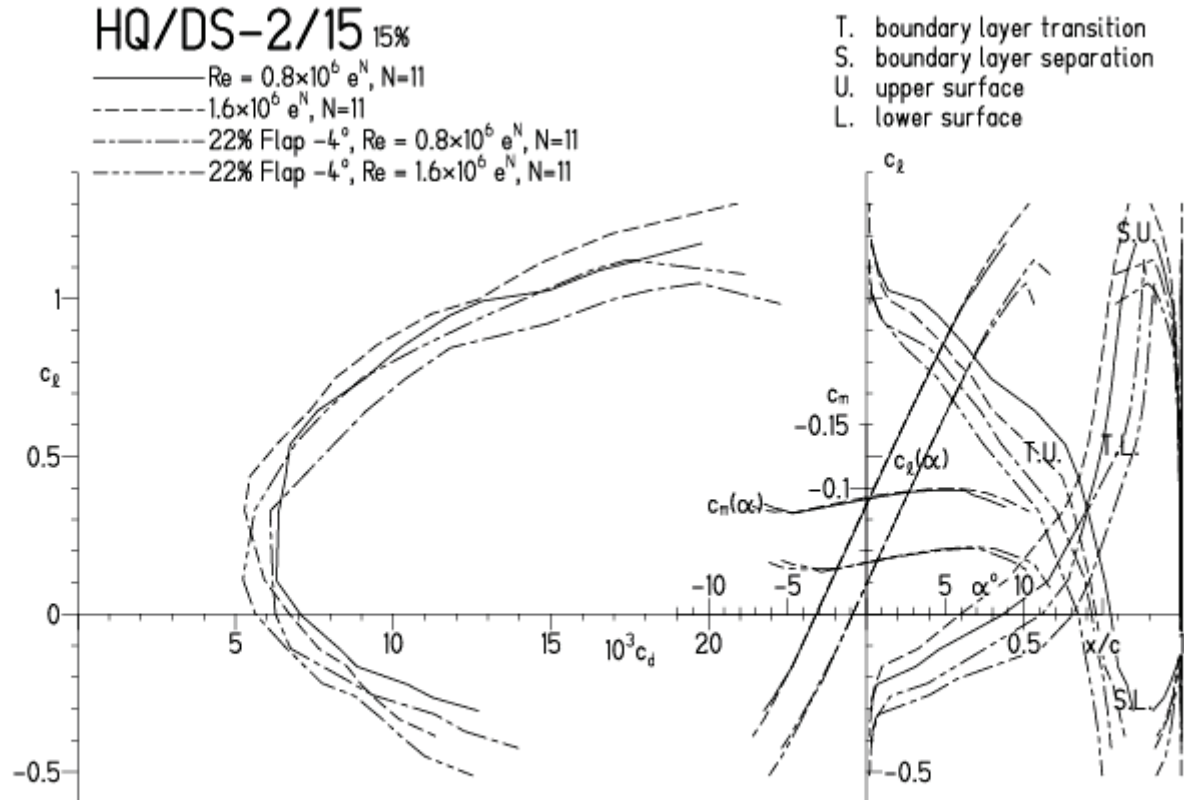


HQ/DS-2/15-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.1.12 17:56

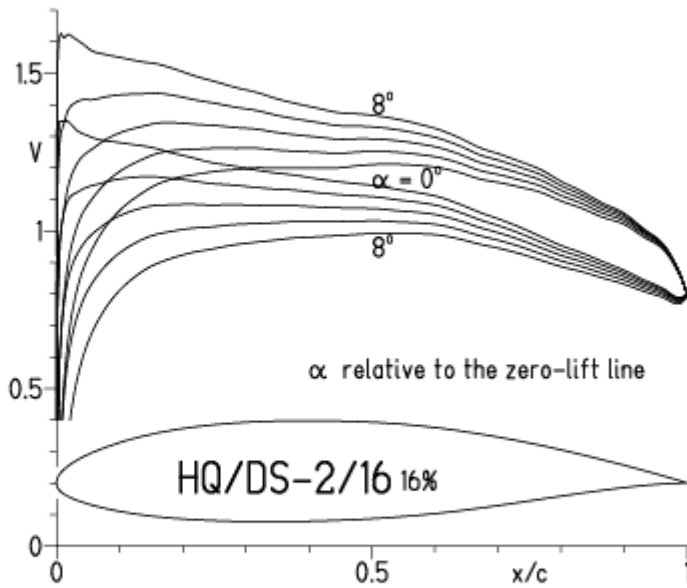


EPPLER 2005 V.

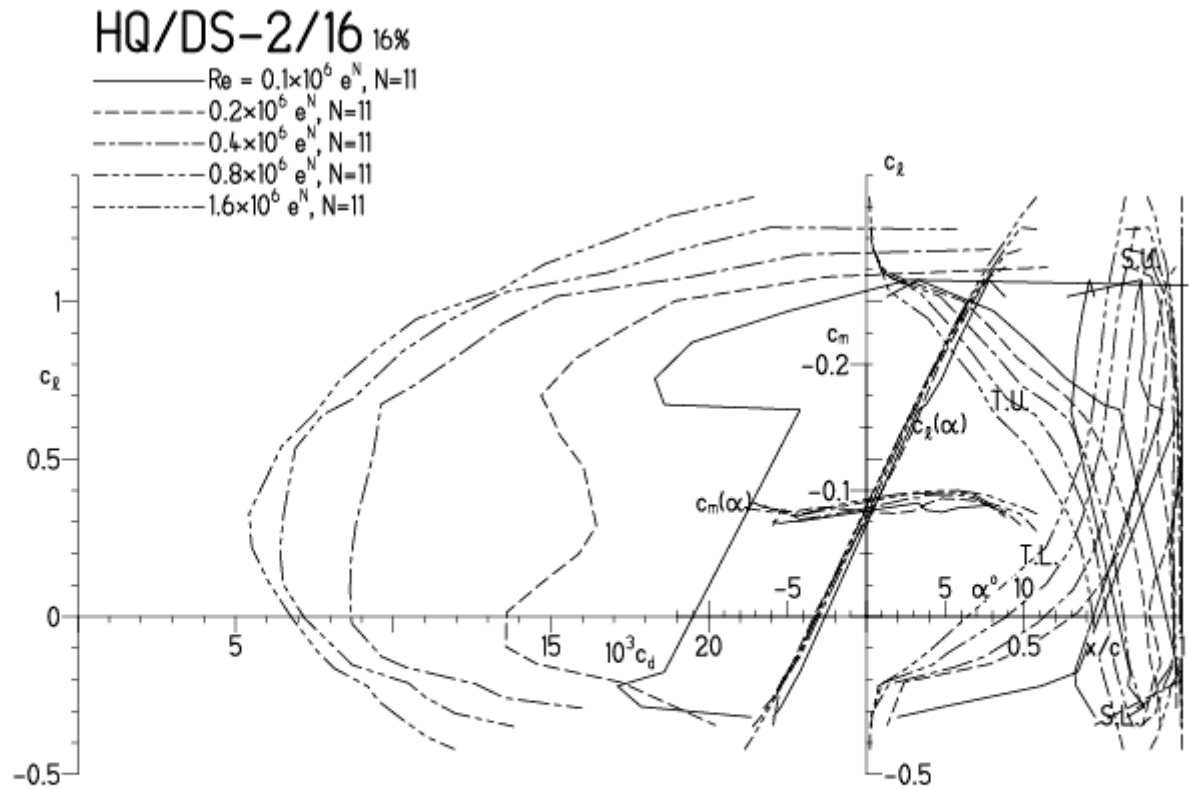


HQ/DS-2/16-Polaren, N=11

EPPLER 2005 V. 8.5.07 RUN 2.A.12 18:07

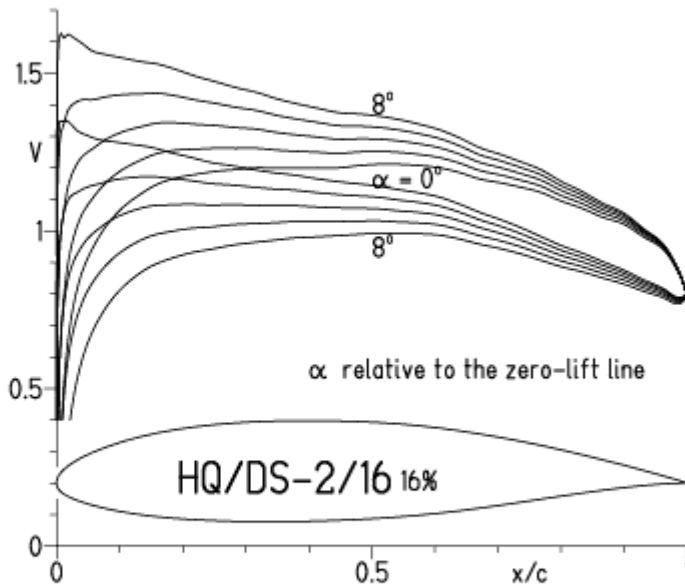


EPPLER 2005 V. 8.5.07 RUN 2.A.12 18:07

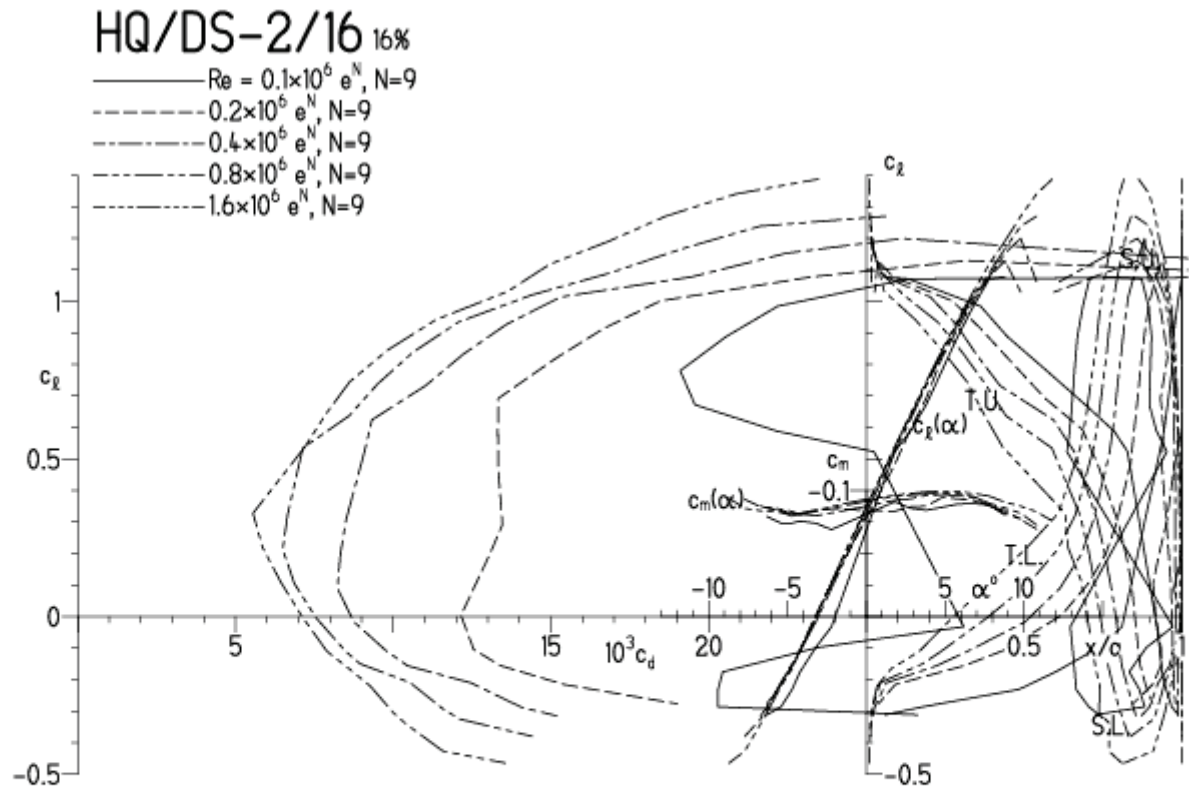


HQ/DS-2/16-Polaren, N=9

EPPLER 2005 V. 8.5.07 RUN 2.1.12 18:18

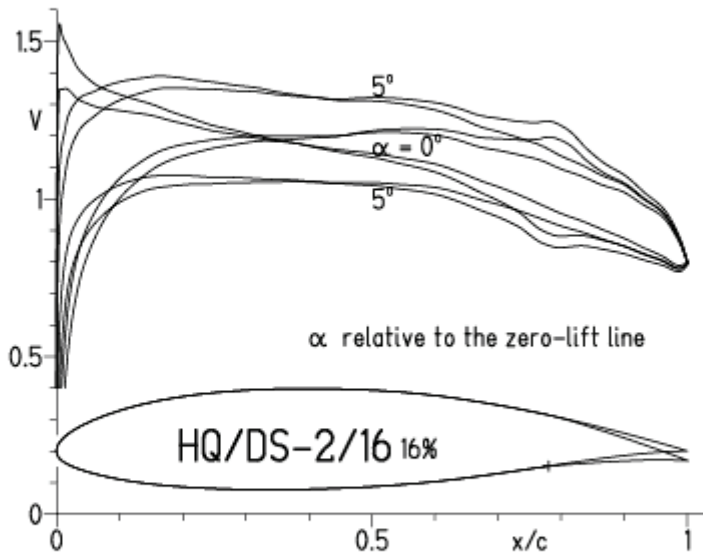


EPPLER 2005 V. 8.5.07 RUN 2.1.12 18:18

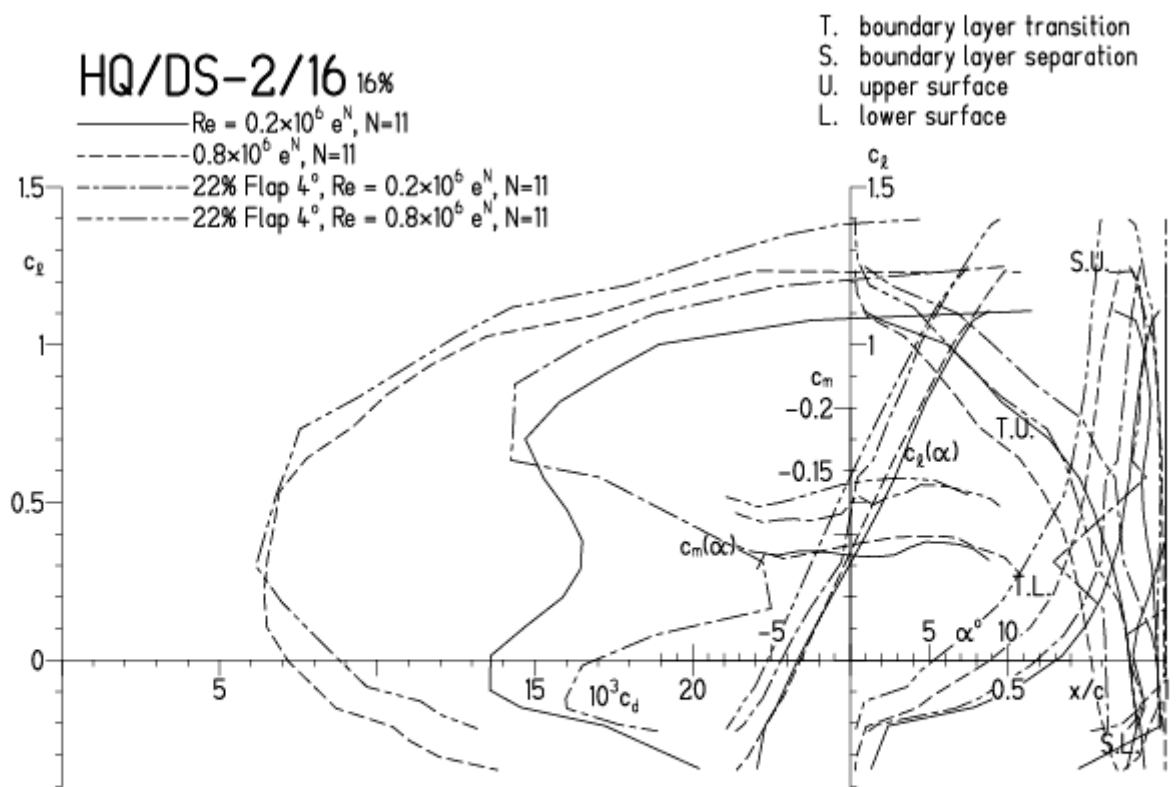


HQ/DS-2/16-Polaren, N=11, mit 4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.1.12 18:28

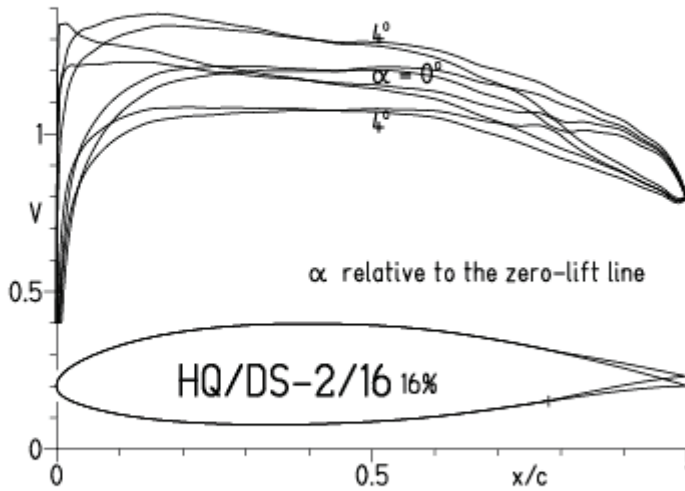


EPPLER 2005 V. 8.5.07 RUN 2.1.12 18:28



HQ/DS-2/16-Polaren, N=11, mit -4° Wölbklappenausschlag

EPPLER 2005 V. 8.5.07 RUN 2.A.12 18:41



EPPLER 2005 V. 8.5.07 RUN 2.A.12 18:41

