Versuchsanstalt für Stahl, Holz und Steine
(Amtliche Materialprüfungsanstalt)
Universität Karlsruhe (TH)

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TEST REPORT

No.: 094172

Investigations with anchoring of roping devices

Customer:	Gebr. Schneider Fenster- und Fassadenfabrik Rechenberger Strasse 7-9 74597 Stimpfach
Basis of testing:	Order of 17th of September 2009
Object of testing:	Project St. George Wharf: "Eyebolts"

This test report includes 3 pages and 13 annexes.

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Annexes 1 to 8: Photos
Annexes 9 to 13: Load-deformation-graphs

1 Preliminary remarks

Tensile tests with the anchoring of roping devices "Eyebolts" were performed by order of the company Gebrüder Schneider Fenster- und Fassadenfabrik GmbH, Stimpfach. The roping devices will be used at the project St. George Wharf. The tests were performed at the Versuchsanstalt für Stahl, Holz und Steine.

2 Object and scope of investigations

The company Gebrüder Schneider GmbH delivered us two test set-ups with each two already mounted roping devices. The set-up consisted of a rectangular hollow section for anchoring the roping device. Two different ways of anchoring were used: Type 1 with a flat steel plate and a washer, type 2 with a washer only. The applications for these different types at the building are shown in Fig. 1 and Fig. 2. The corresponding test set-ups are shown in Fig. 3 and Fig. 4. The tubes 26,9/4,5S235 which can be found in both drawings of the type 2 application in Fig. 2 and the test set-up in Fig. 4 were not included in the delivered set-up.
The roping device itself was labelled "ABS-Lock III, Produktionsjahr 2009, Chargen-Nr. W09004". Two additional roping devices were included to perform additional tests if necessary.

3 Performance and results of tests

Tests were starting with the type 2 application. Failure at the load introduction point at the top of the test set-up occurred in test No. 1, therefore the load introduction point of all the set-ups was strengthened. Then the tests were continued with two tests with the type 2 application and two tests with the type 1 application. Performance of a third test with type 1 (Test No. 6) was not possible due to deformation at the upper flange of the hollow-section. Failure in tests No. 2 to 5 occurred by breaking in the threads of the Eyebolts. Table 1 lists the test results.

Test No.	Type	load-deformation-graph	F_{max}
1	2	Annex 9	113[1)]
2	2	Annex 10	118
3	2	Annex 11	116
4	1	Annex 12	121
5	1	Annex 13	120
[1)] Bearing failure at load introduction			

Table 1: test results

During the tests deformation of the eye-nut and the upper flange of the hollow section could be observed. The lower flange remained un-deformed.

4 Summary

Tensile tests with the anchoring of roping devices "Eyebolts" were performed by order of the company Gebrüder Schneider Fenster- und Fassadenfabrik GmbH, Stimpfach. The results are presented in chapter 3 and shown in the annexes.

Karlsruhe, 9th of October 2009 mi/pc

Official in charge

Dr.-Ing. Th. Misiek

VERSUCHSANSTALT FÜR STAHL, HOLZ U. STEINE (09) Amtliche Materialprüfungsanstalt Universität Karlsruhe (TH)

Director

Univ.-Prof. Dr.-Ing. T. Ummenhofer

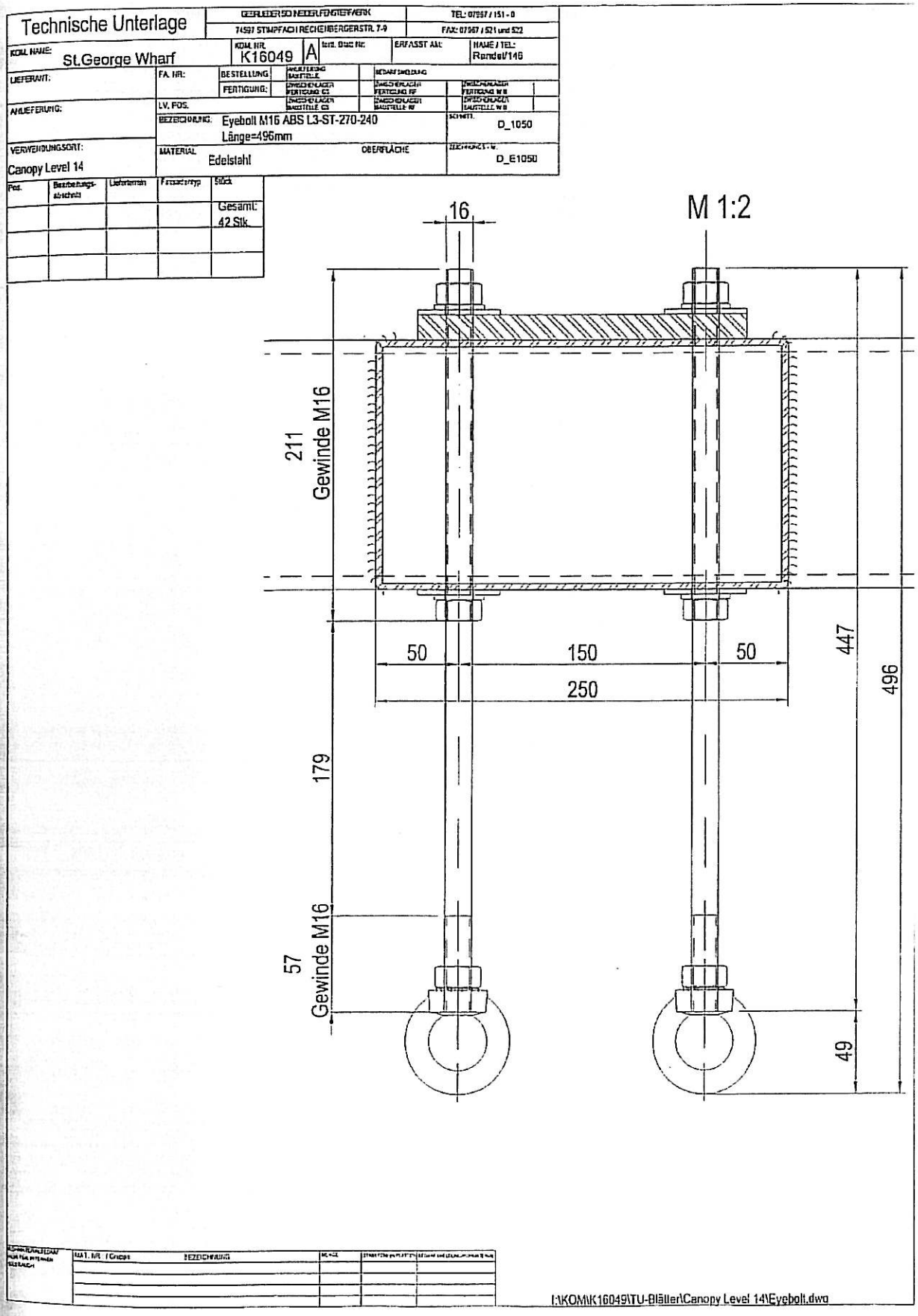


Fig. 1: Application of the Eyebolts at the building – type 1

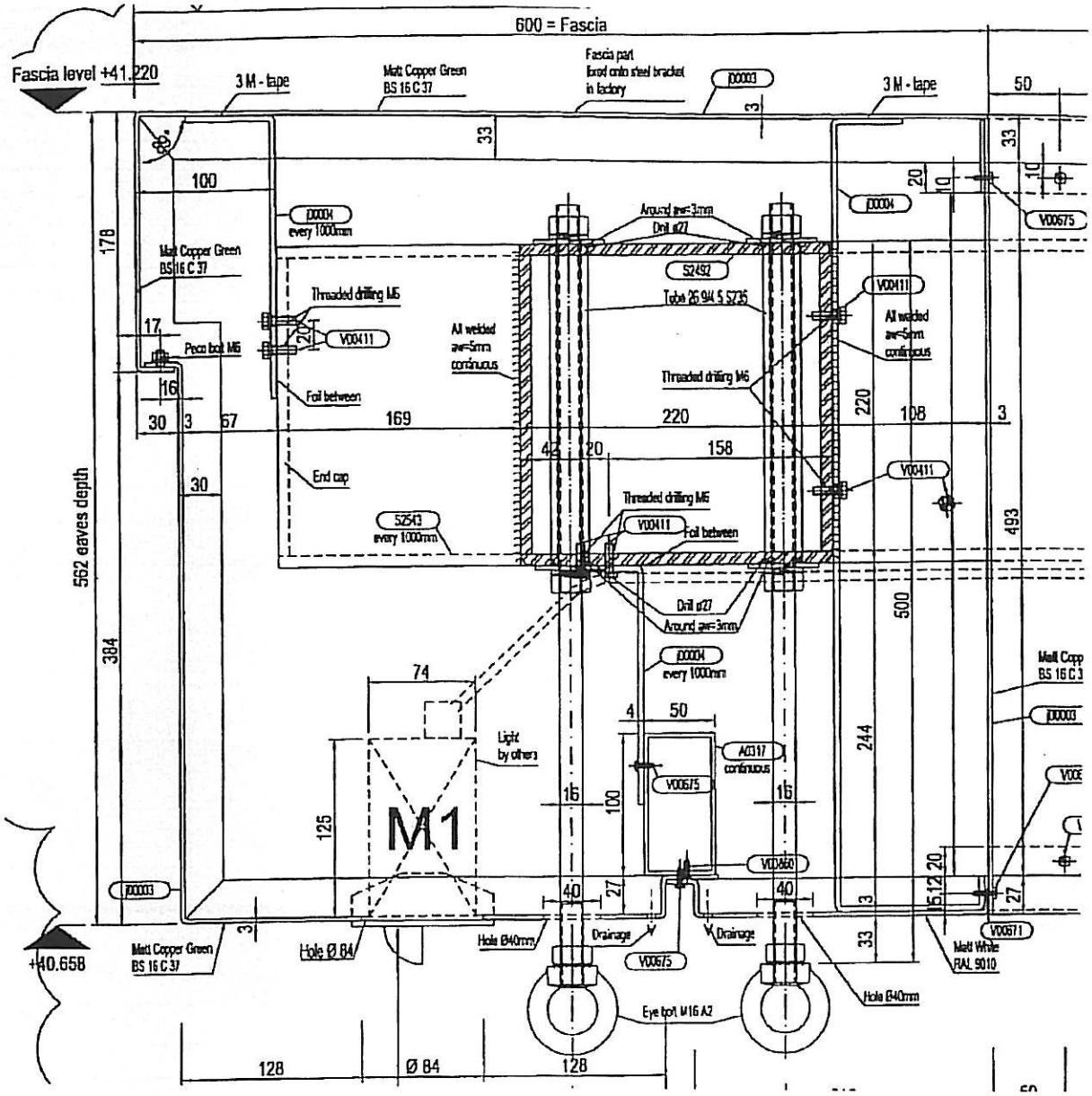


Fig. 2: Application of the Eyebolts at the building – type 2

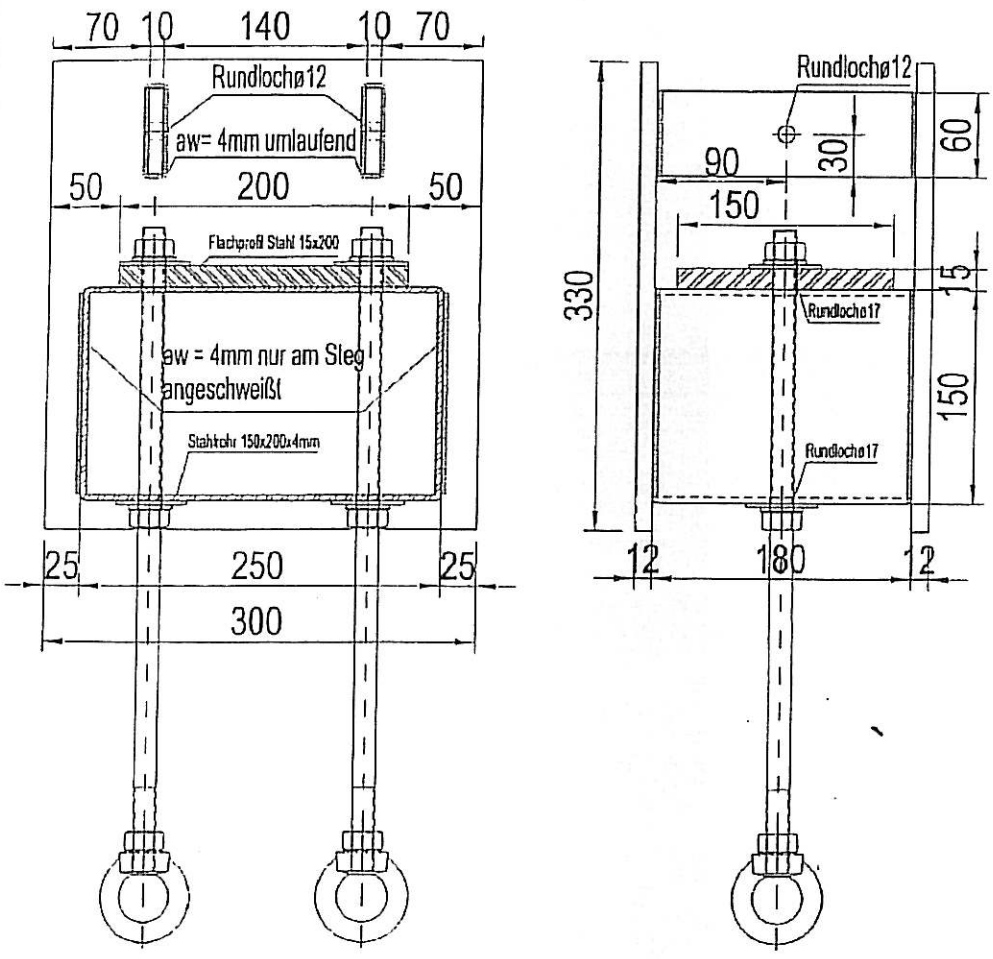
Technische Unterlage	GEBRUEDER SCHNEIDER FENSTERFABRIK 74597 STIMPFACH RECHENBERGERSTR. 7-9	TEL: 07967 / 151 - 0 FAX: 07967 / 521 und 522

KOM. NAME: St. George Wharf	KOM. NR. K16049	A	forl. Blatt Nr: 5315	ERFASST AM: 15.09.2009	NAME / TEL: Bohnsack - 252

LIEFERANT:	FA. NR:	BESTELLUNG: ☒ ANLIEFERUNG BAUSTELLE:	BEDARFSMELDUNG: 461761	
		FERTIGUNG: ZWISCHENLAGER FERTIGUNG: GS	☒ ZWISCHENLAGER FERTIGUNG: RF	ZWISCHENLAGER FERTIGUNG: W II
ANLIEFERUNG:	LV. POS.	ZWISCHENLAGER BAUSTELLE: GS	ZWISCHENLAGER BAUSTELLE: RF	ZWISCHENLAGER BAUSTELLE: W II
	BEZEICHNUNG: Stahlkonstruktion Zugtest1			SCHNITT: -
VERWENDUNGSORT:	MATERIAL: Stahl	OBERFLÄCHE: roh		ZEICHNUNGS - Nr.: -

Pos.	Bearbeitungs-abschnitt	Liefertermin	Fassadentyp	Stück
	999999	18.09	CA	1

Eyebolts, Muttern sowie Unterlegscheiben
Leistung GS, Einbau dieser im Werk T1



ROHMATERIALBEDARF NUR FÜR INTERNEN GEBRAUCH	MAT. NR.: / Gruppe	BEZEICHNUNG	MENGE	STAHLFORM/PLATTEN	BEDARFSMELDUNG ROHMATERIAL

Fig. 3: test set-up – type 1

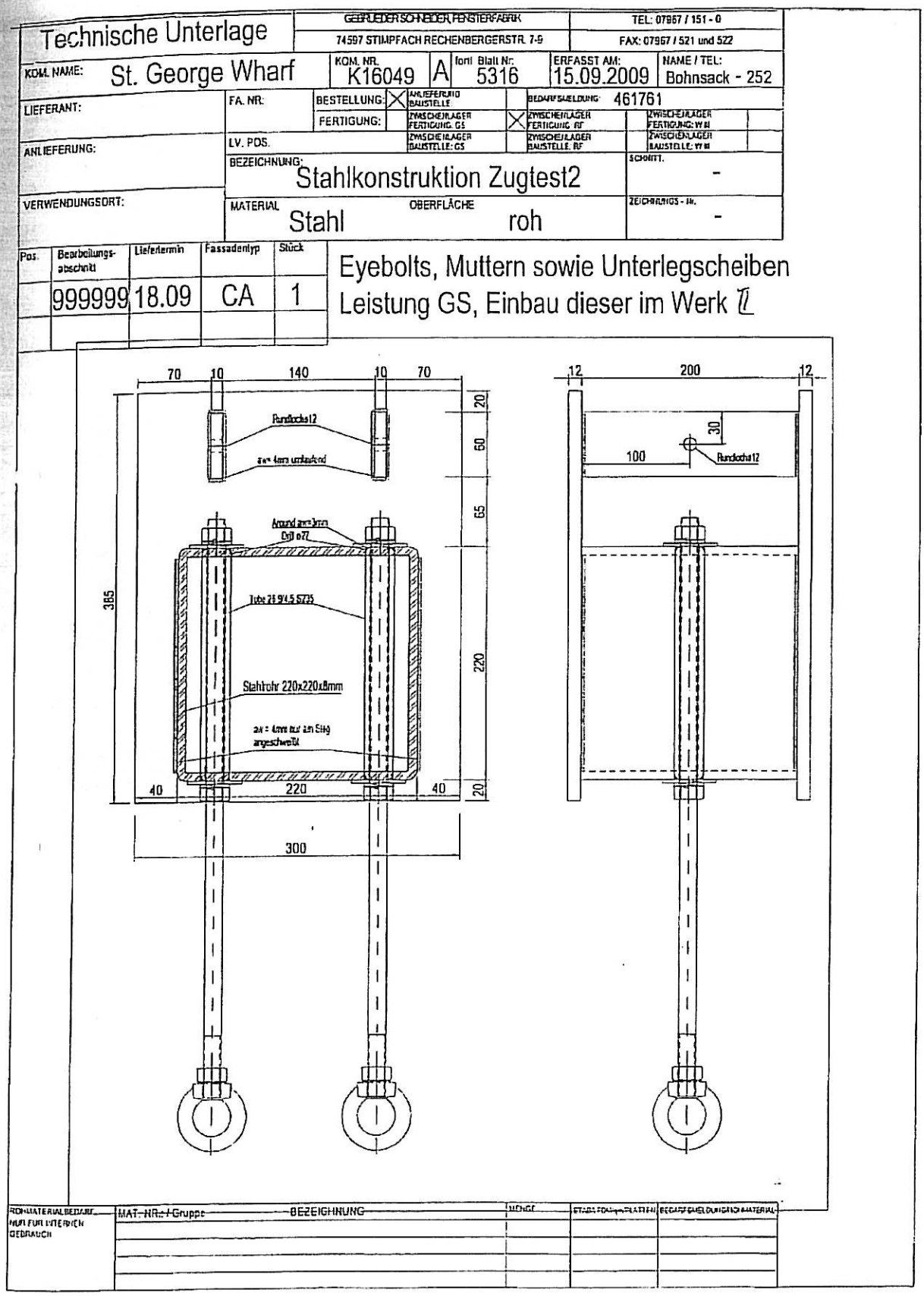


Fig. 4: test set-up – type 2

Fig. 5: Failure in the threads of the roping device

Fig. 6: Local bending of the threads due to deformation of the hollow section

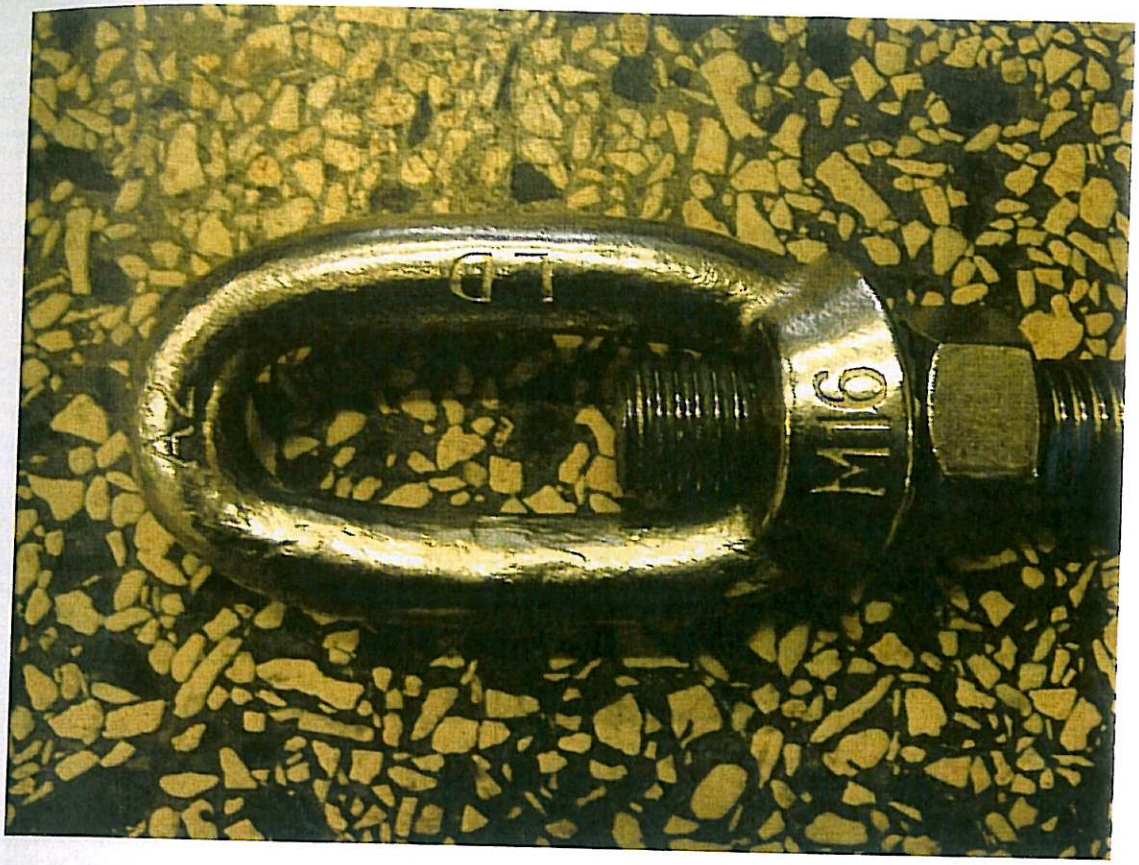


Fig. 7: Deformation of the eye-nut

Fig. 8: Deformation of the washer

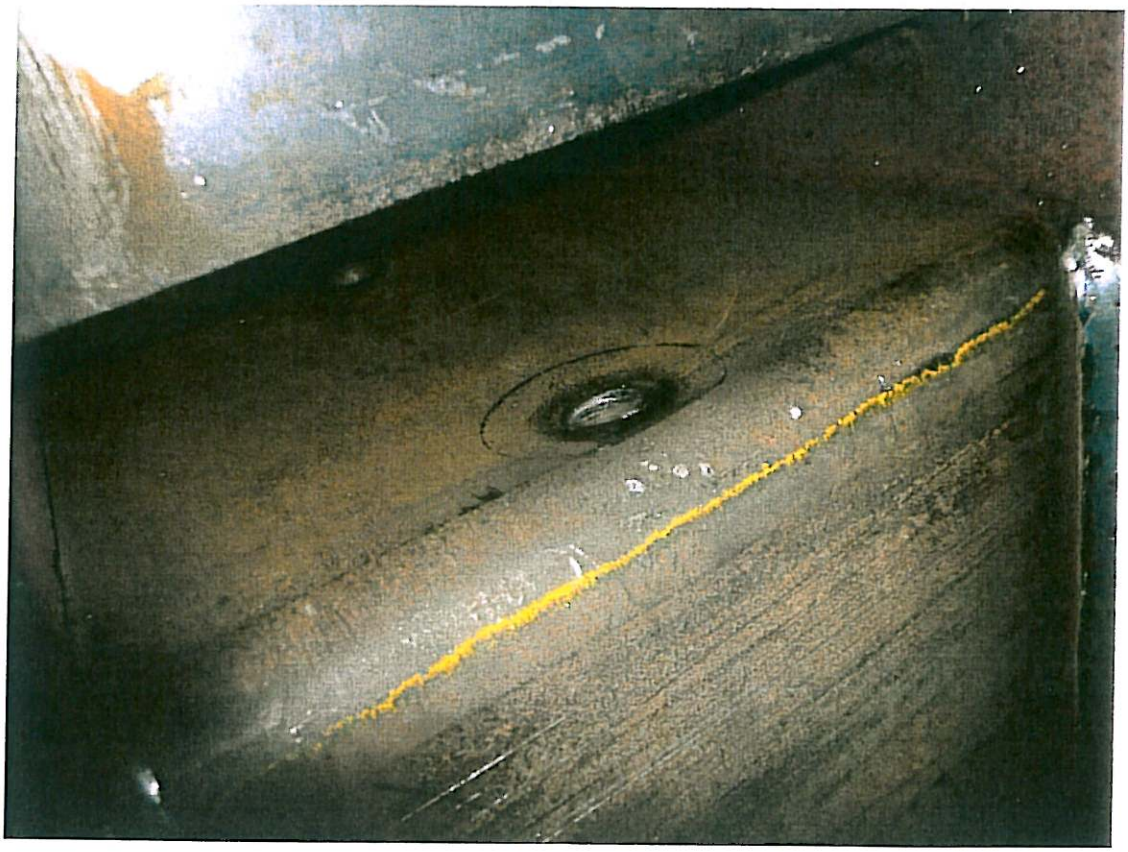
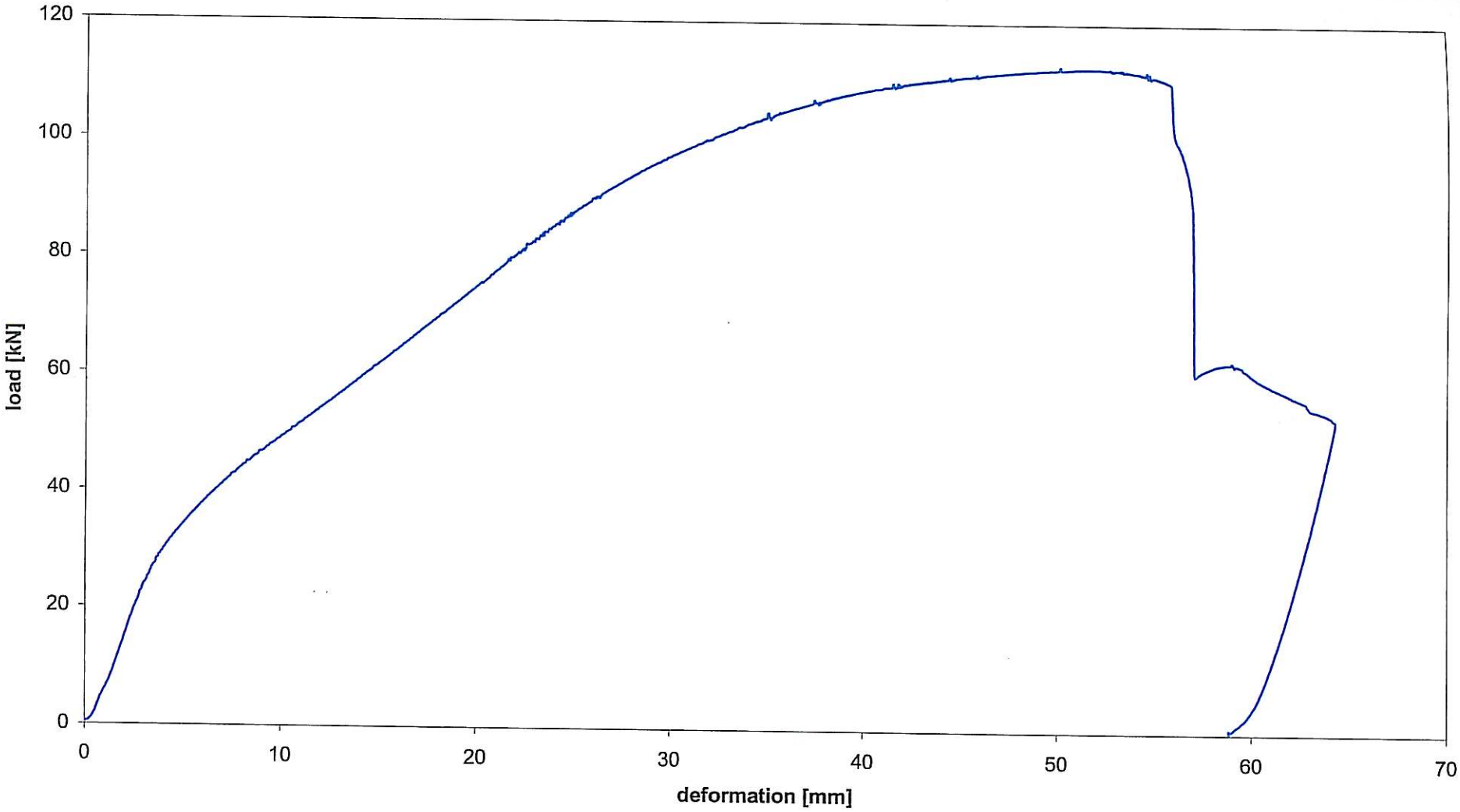


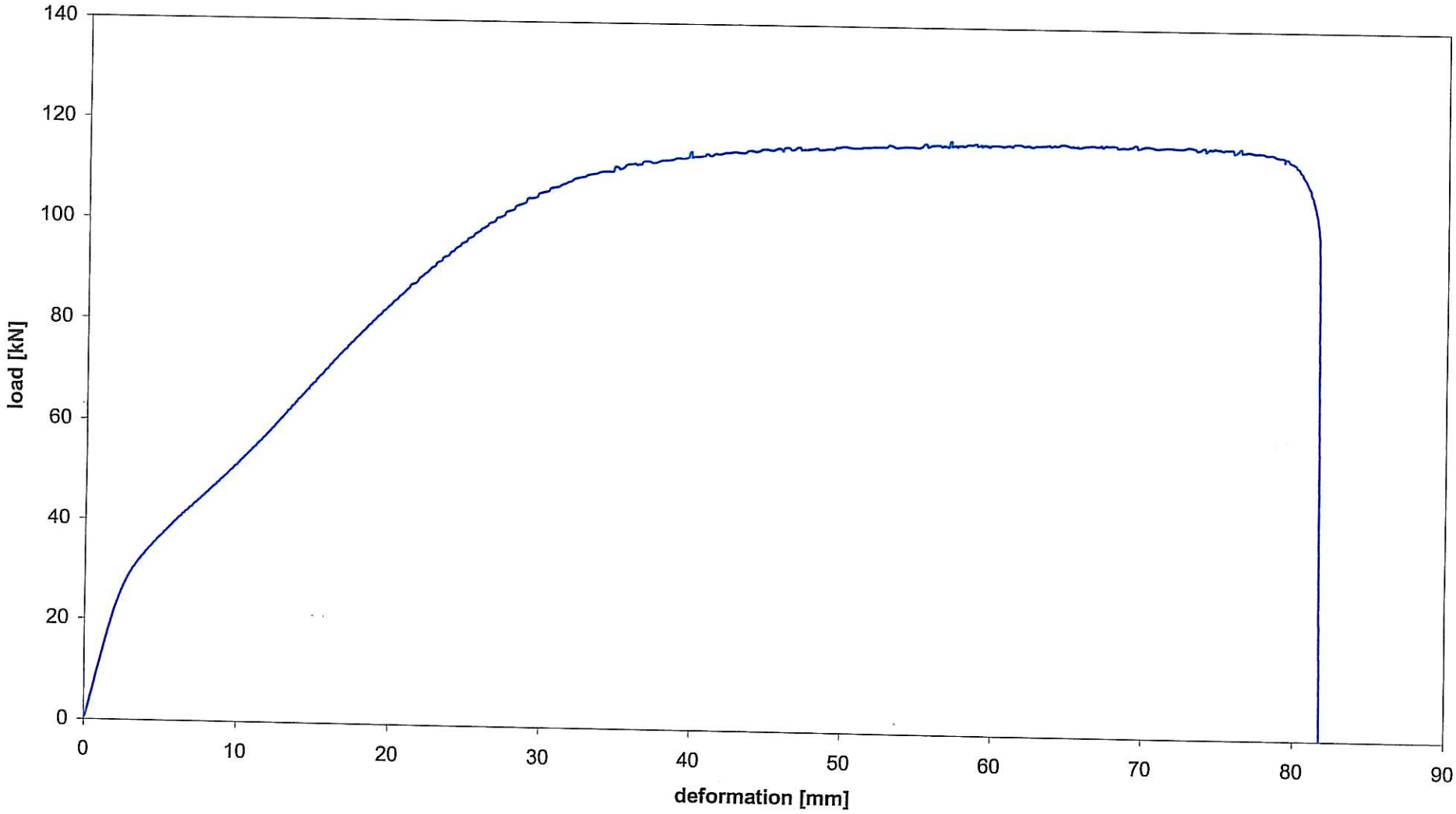
Fig. 9: Deformation of flange of the section

Fig. 10: Cracking of the section near to the welds

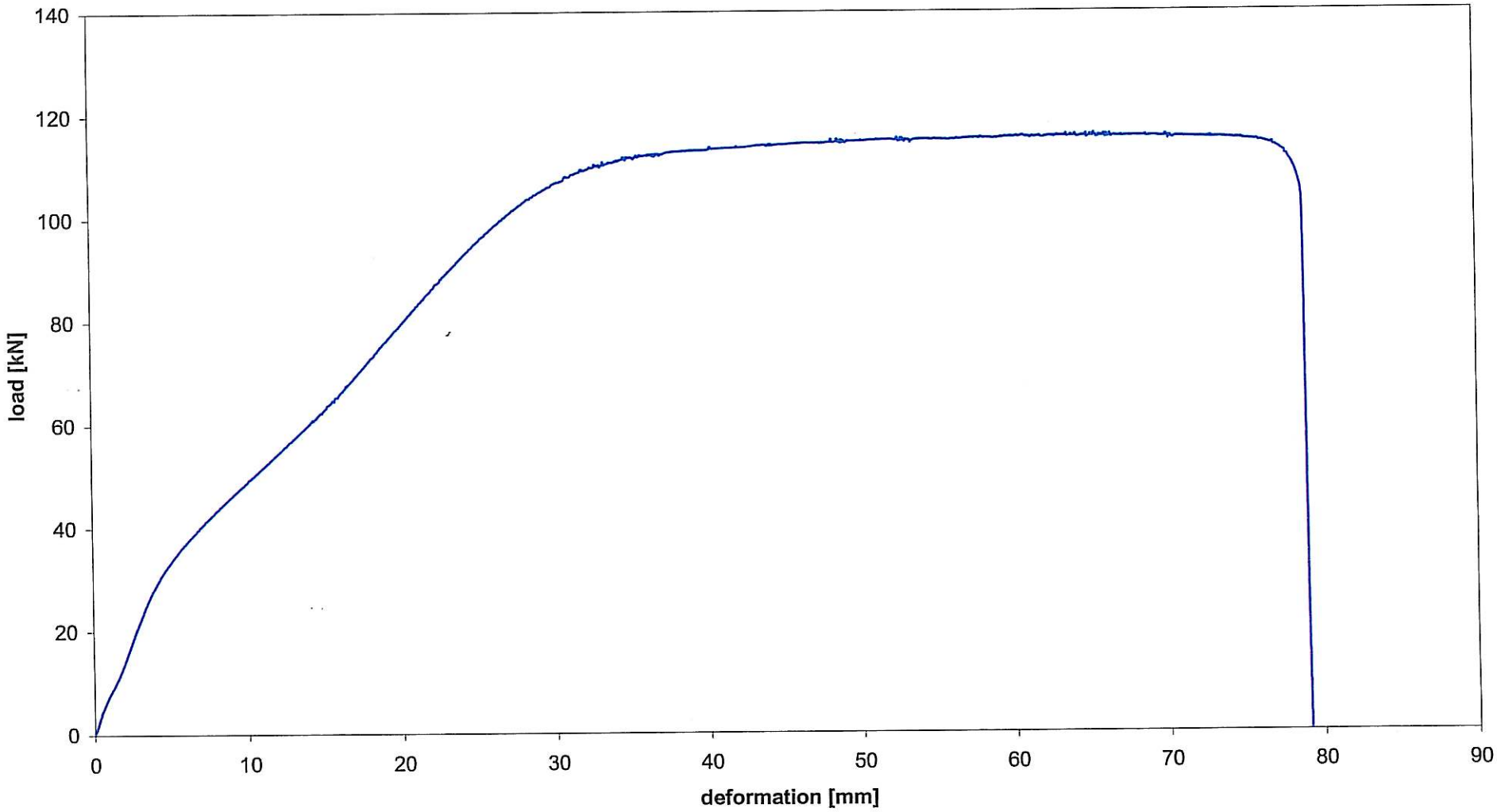
test No. 1



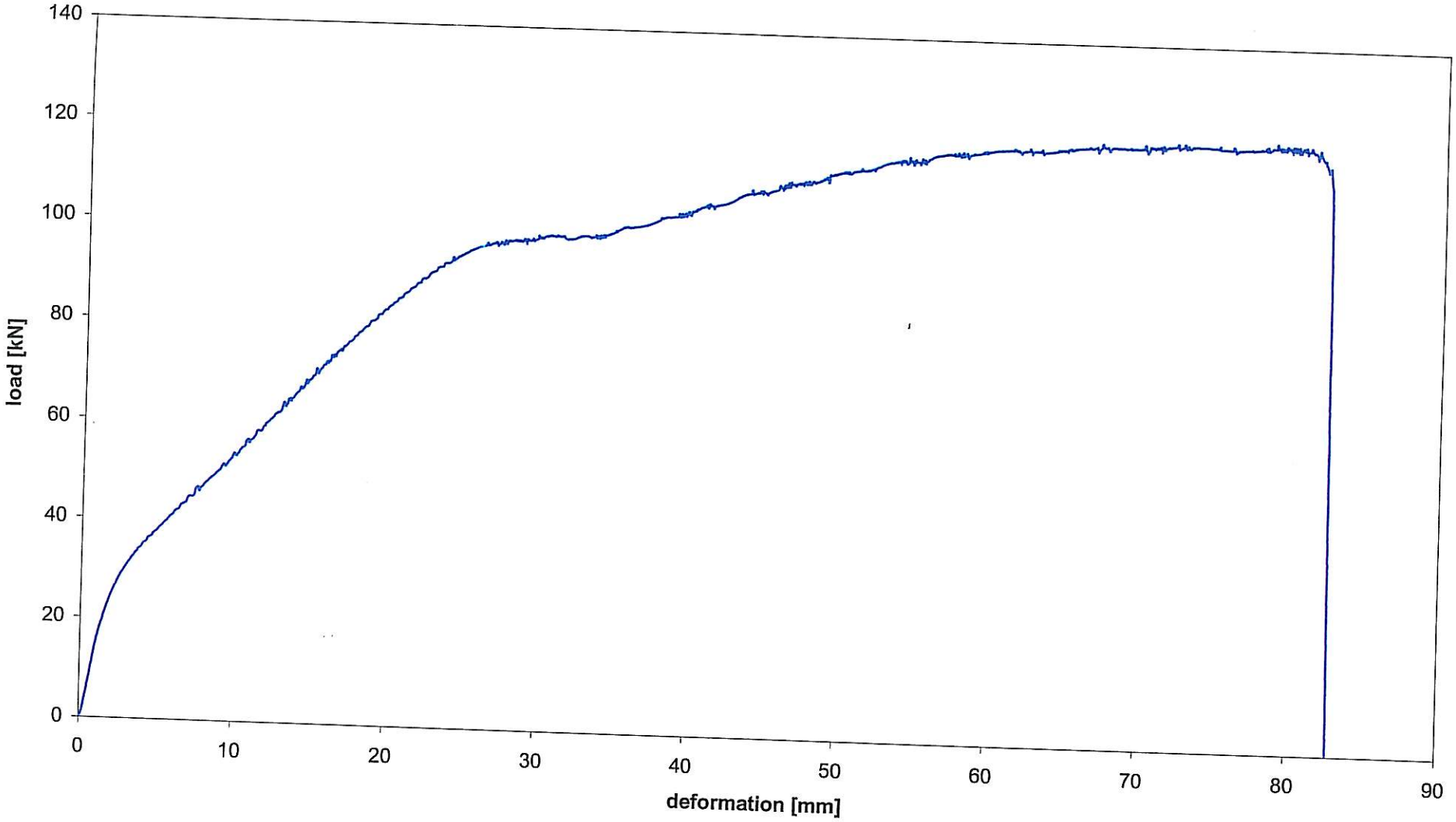
test No. 2



test No. 3



test No. 4



test No. 5