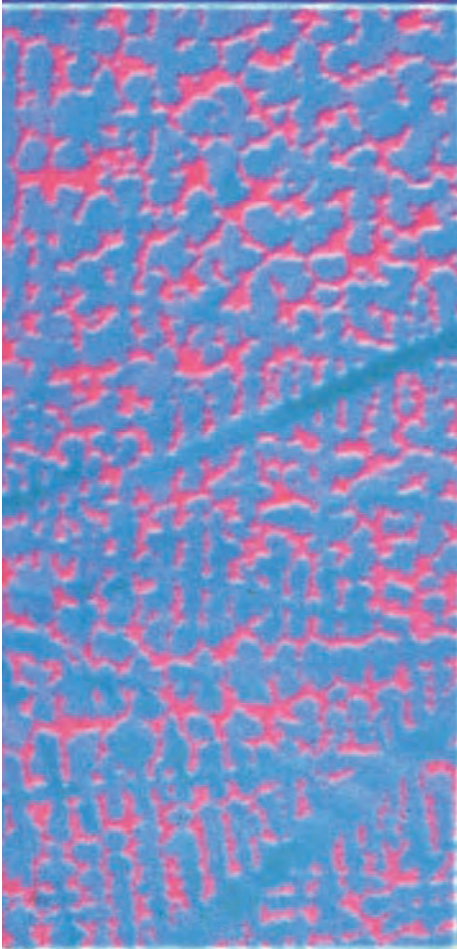


Research and Development Center

BY MAPPING ANALYZER

SUMITOMO TEST REPORT
SURELOCK MECHANICAL PIPE JOINT



FILE CR13
PIXEL 1
TIME 50msec
STEP 20micron
SIZE 8.0mm
ORIGIN
X= 143.000mm
Y= 13.000mm
CURSOR
X=
Y=
WTX
■ 1000.00
■ 940.000
■ 880.000
■ 820.000
■ 760.000
■ 700.000

バトラージョイント基本性能
確認試験 結果報告書

MECHANICAL TEST RESULTS OF BUTLER TECH
SURELOCK MECHANICAL PIPE JOINT

MARCH 1996

SUMITOMO METAL TECHNOLOGY, INC.

4 - 2 継手引張疲労試験 FATIGUE TEST

DETAIL RESULTLS OF FATIGUE TEST IN ENGLISH

No.	Diameter (OD) (mm)	Thickness (mm)	Area of Section (mm ²)	Frequency (Hz)	Load (tonf)		Stress (kgf/mm ²)		Stress Range σ_R (kgf/mm ²)	Stress Ratio R (σ_{min} / σ_{max})	Number of Cycles N (cycle)	Leak of Air	Position of Fracture
					P max	P min	σ_{min}	σ_{min}					
1	60.3	3.9	691	2	10.9	1	15.9	1.4	14.5	0.09	187710	No Leak	Weld Zone *1
2	60.3	3.9	691	2	13.6	1	19.7	1.4	18.3	0.07	1231010	No Leak	Weld Zone *1
3	60.3	3.9	691	2	15.3	1	22.1	1.4	20.7	0.06	64730	No Leak	Weld Zone *1
4	60.3	3.9	691	2	15.3	1	22.1	1.4	20.7	0.06	1064632	No Leak	Base Metal

Note *1 Specimens were damaged at weld zone of chucking jig and tests were stopped.

SUMMARY RESULTLS.OF FATIGUE TEST IN JAPANESE

表 - 4 継手(引張)疲労試験

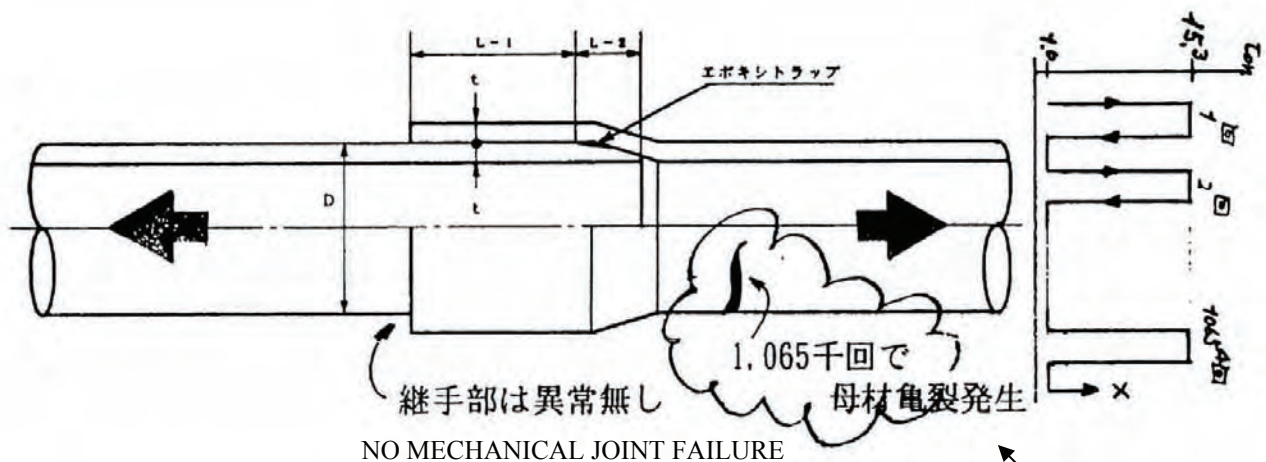
外径×板厚(mm)	NO	荷重条件	繰返し数	継手状況	備考
φ 60.3 × 3.9	1	Y. P. × 60%	187,771	異常無し	チャック部破損で試験継続不能により試験中断
	2	Y. P. × 80%	1,231,010	異常無し	
	3	Y. P. × 90%	64,730	異常無し	
	4		1,064,632	異常無し	母材破断

WELD
FIXTURE
FAILURE

BASE
METAL
FAILURE

Y. P. ; 供試材降伏強度

LOAD TONS CYCLES NO LEAKS

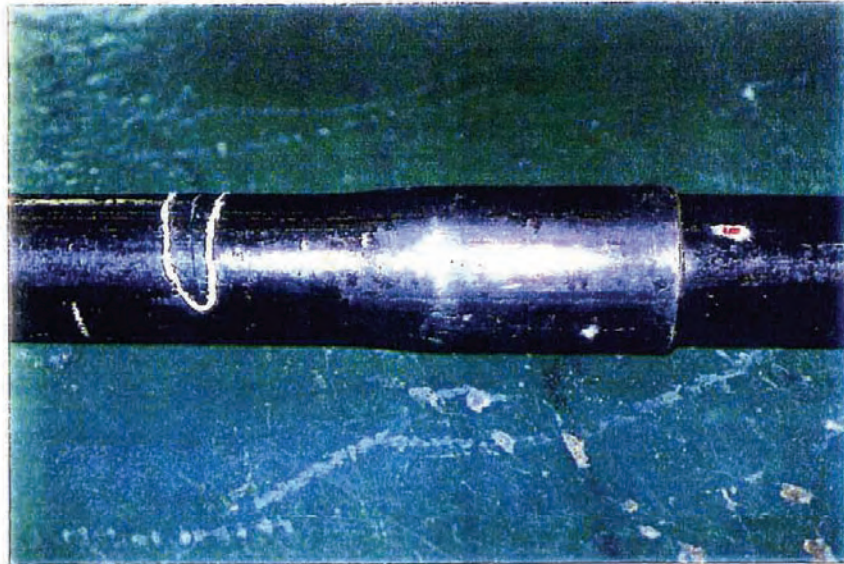


NO MECHANICAL JOINT FAILURE

BASE
METAL
FAILURE

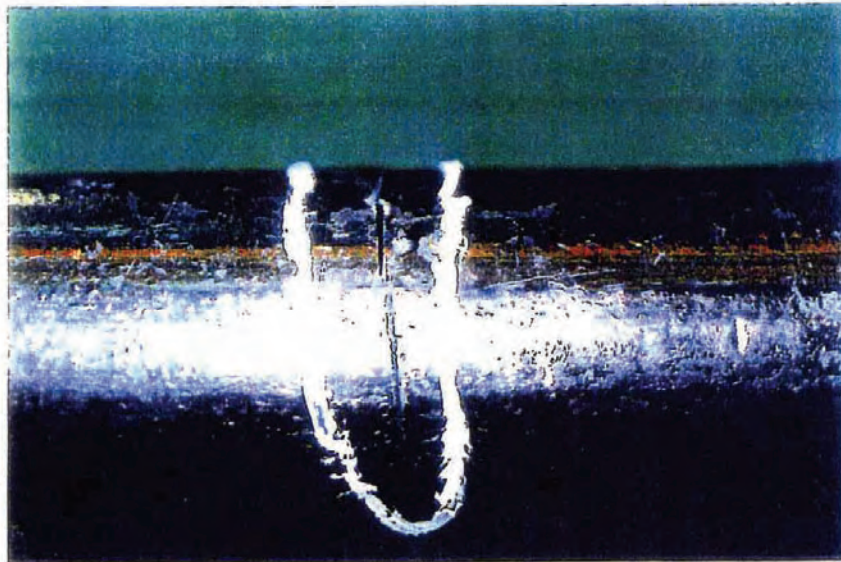
図 - 2 引張疲労試験 (供試材 No. 4) の試験結果の状況

FATIGUE TEST



試験後の外観

LOCATION OF BASE METAL FAILURE



母材破断部の状況

CLOSE UP OF BASE METAL FAILURE

BASE METAL FAILED AT 90% OF YIELD POINT AFTER 1,064,632 CYCLES

写真-1 継手（引張）疲労試験（Y.P. × 90% 1,064,632回）

試験完了後の母材亀裂部の状況