






GESTRA Boiler controls acc. to TRD 604, sheet 1, 24/72 hrs or EN 12953, part 6 TÜV, EC Type Approval Revised: February 2004

Function	TRD 604			EN 12953, part 6			Equipment	Type approval no.
	required	recommended	Section	required	recommended	Section		
2 Low-level limiters	yes		1.4 3.6.1	yes		4.3.1 5.7.1	NRG 16-40 / NRS 1-40 Self-monitoring equipment with automatic routine testing	TÜV-SWB/SHWS-02-403 EG BAF-MUC 02 02 103881 002
							NRG 16-11 / NRS 1-7 Self-monitoring equipment with automatic routine testing	TÜV WB 01-354 EG 01 202 931-B-01-0007
Low-level limiter/ High-level alarm in Bus system	yes		1.4 3.6.1 1.8 5.1	yes		4.3.1 5.7.1	NRG 16-40 / NRS 1-40 Self-monitoring equipment with automatic routine testing NRG 16-41 / NRS 1-41 Self-monitoring equipment with automatic routine testing	TÜV-SWB/SHWS-02-403 EG BAF-MUC 02 02 103881 002
Low-level limiter/ High-level limiter/ Temperature limiter	yes		1.4 3.6.1 1.8 5.1 1.6 1.7 3.6.3	yes		4.3.1 5.7.1 4.4 5.7.2	NRG 16-40 Self-monitoring equipment NRG 16-41.1 Self-monitoring equipment TRG / TRV 5-46 Self-monitoring equipment NRS 1-40.1	TÜV-SWB/SHWS-03-413 EG BAF-MUC 03 07 103881 004
Low-level limiter with control/ High level	yes		1.4 1.8 3.4	yes		4.3.1 5.7.1 4.5.2	NRG 16-36 / NRS 1-9 Self-monitoring equipment with automatic routine testing	TÜV WB/WR 04-370 EG 01 202 931-B01-0075
Feedwater controller with high-level alarm	yes		1.8 3.4	yes		4.5.2 5.5 5.6.1 5.6.2	NRGS 16-1 Compact system for on-off control	TÜV WRB 01-388
							NRG 16-42 / NRS 1-42 Bus-based on-off control	TÜV WR 03-399
							ER 56 / NRS 1-5 On-off control - discontinued -	TÜV WR 03-302
							NRGT 26-1 Compact system for continuous monitoring, current output 4...20 mA	TÜV WR 02-391
							NRG 26-40 / NRS 2-40 Bus-based on-off controller with adjustable switchpoints	TÜV WR 03-399
							NRG 26-21 / NRS 2-1 On-off control - discontinued - with adjustable switchpoints	TÜV WR/WS 04-317
							NRG 26-40 / NRR 2-40 URB Bus-based modulating controller with adjustable limits	TÜV WR 03-399
Feedwater controller with high-level alarm	yes		1.4 3.4	yes		4.5.1 5.5 5.6.1 5.6.2	NRG 26-21 / NRR 2-1 Modulating control - discontinued -	TÜV WR 04-317
							NRG 26-21 / NRR 2-2 Modulating control with adjustable limits - discontinued -	TÜV WR 01-320
							LD 144	TÜV WRS 01-324
Separate high-level alarm	yes »72h«		1.8 5.1			5.6.2	NRG 16-4 / NRS 1-2 Conventional design	TÜV WR
							NRG 16-12 / NRS 1-8 Self-monitoring equipment with automatic routine testing	TÜV approval 01-91-0112
							NRG 16-41 / NRS 1-41 Self-monitoring equipment with automatic routine testing	TÜV-SWB/SHWS-02-403 EG BAF-MUC 02 02 103881 002

According to TRD regulations you may only combine low-level limiters with level controls or high-level alarms.

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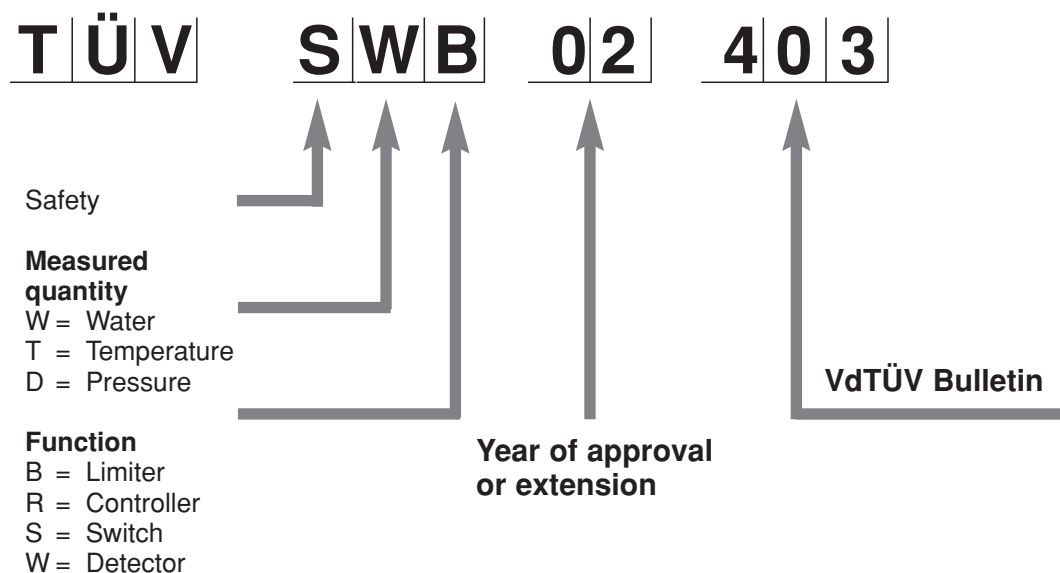
Function	TRD 604			EN 12953, part 6			Equipment	Type approval no.
	required	recommended	Section	required	recommended	Section		
Safety temperature limiter	yes		1.6 1.7 3.6.3	yes		4.4 5.7.2	TRG 5-6.. / TRV 5-40 PT 100 NRS 1-40.1	SWB/SHWS 03-413 EG BAF-MUC 03 07 103881 004
Safety temperature limiter	yes		1.7 1.6 3.6.3	yes		5.7.2	TRG 5-5.. / TRS 5-6 PT 100	STW (STB) 985 03 S EG 01 202 931-B-01- 0008
						4.4	TRG 5-.. / TRS 5-7 Thermocouple type K	STW (STB) 986 03 S EG 01 202 931-B-01- 0007
Safety pressure limiter	yes		1.3 3.6.4	yes		5.7.2	DSF ..F 001 Self-monitoring equipment	TÜV DWFS (SDBFS) 00-332
Conductivity (TDS) control for boiler water*)	yes		5.2				LRG 16-4 / LRS 1-5 manual temperature compensation	not available TÜV approval
Automatic continuous boiler blowdown system*)	optional	yes	2.1 4.8		yes	C 1.8	LRG 16-4 / LRS 1-5 On-off control	not required
							LRGT 16-1 / KS 90 Three-position stepping control, automatic temperature compensation	TÜV-WÜL-01-003 EG BAF-MUC 01 04 105620 001
Automatic continuous boiler blowdown with signalling of limit levels *) 1)	optional yes »72h«	yes	5.2		yes	C 1.8	LRG 16-4 / LRR 1-5 / URS 2 On-operation-off manuel temperature compensation	not available
							LRGT 16-1 / KS 90 Three-position stepping control, automatic temperature compensation Max. limit	TÜV-WÜL-01-003 EG BAF-MUC 01 04 105620 001
							LRG 16-40 / LRR 1-40 Bus-based continuous boiler blowdown, three-position stepping control, automatic temperature compensation Max. limit	TÜV-WÜL-02-007 EG BAF-MUC 02 03 103881 003
Automatic intermittent boiler blowdown	optional	yes	2.1/5.2 4.8		yes	5.3.1	TA / MPA LRR 1-40 / MPA	not required
Conductivity (TDS) control for make-up water*)	yes »72h«		2 4.8 5.2				LRG 16-4 / LRS 1-6	not available
Residual hardness of make-up water (process titration*)	yes »72h«		5.2					
Condensate monitoring: oil and turbidity detection*)	yes		2.1/4.8	yes		5.6.3	OR 52-5 / -6	TÜV-WÜF-02-009
	»72h« 2 detectors		5.2					
Contamination detection of acids, alkalis etc.*)	yes		2.1/4.8 5.2	yes		5.6.3	LRG 12-1 / LRT 1-6 URS 2	not available

Explanatory notes:

*) Approximate values and limits according to TRD 611 / EN 12952-12 and EN 12953-10

1) Combining continuous boiler blowdown and limit control precludes the need for pure limit signalling.
T.D.S. = Total Dissolved Solids

Type Approval Number Code



Classification societies for marine applications

- GL Germanischer Lloyd
- LR Lloyd's Register
- See BG See-Berufsgenossenschaft
- RINA Registro Italiano Navale
- NKK Nippon Kaiji Kyokai
- ABS American Bureau of Shipping
- KR Korean Register of Shipping
- BV Bureau Veritas
- DNV Det Norske veritas

Abbreviations for temperature control equipment:

- STW = Safety temperature controller
- (STB) = Safety temperature limiter designed with interlocking facility
- TW = Temperature controller

Function	Equipment	Type Approval Number
Water-level controller with high-level alarm	NRGS 16-1S Compact system for on-off control	GL99250-96 HH LR 98/20075 RINA No ELE/30298/1
	NRGT 26-1S KS 92-1 NRS 2-3 Compact system for modulating control, current output 4...20 mA	GL 99249-96 HH LR 98/20074 RINA No ELE/30298/2 KR HMB06190-MS002 DNV A-8394
Water-level limiter	NRG 16-11S NRS 1-7 Self-monitoring equipment with automatic routine testing	LR 98/20076 GL WB-93-349001 RINA No ELE/95695/1 KR HMB06190-MS002 NKK 02A012
Combination electrode 1 Water-level limiters	NRG 16-38S NRS 1-7 Specification see below	LR 01/20026 GL 40 601 - 01 HH ABS 01-HG227959-PDA
Combination electrode 2 Water-level limiters	NRG 16-39S NRS 1-7 (2x) Self-monitoring equipment with automatic routine testing combined with compact system for continuous monitoring current output 4...20 mA	KR HMB06190-MS002 NKK 02A013 DNV A-8394 BV 11400/A1 BV
Safety temperature limiter	TRG 5-5../TRS 5-6	GL 99251-96 HH LR 00/20051