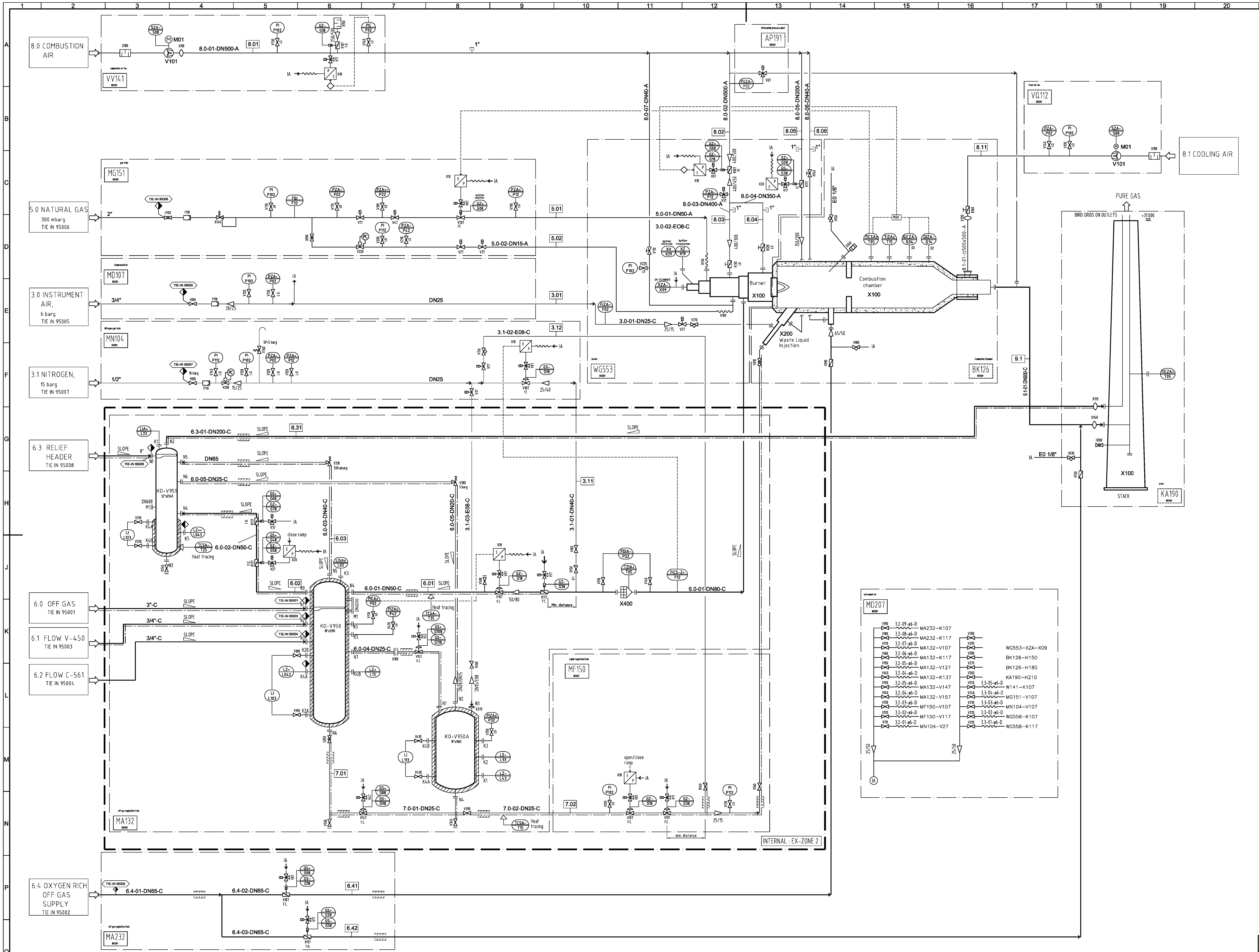


IA: INSTRUMENT AIR
LO: LOCKED OPEN
FC: FAIL CLOSED
FO: FAIL OPEN
IFT: INSTALLED FROM TOP

## KENNBUCHSTABEN FUER MESS- UND REGELUNGSTECHNISCHE (MSR)-EINRICHTUNGEN (DIN 19227)
## CODE LETTERS FOR PROCESS MEASUREMENT AND CONTROL FUNCTIONS

| Kenn-Buchstabe Code Letter | Gruppe 1 Mess- oder andere Eingangsgroesse / Group 1 measuring or ingoing data: Erstbuchstabe first letter | Ergaenz.buchst. compl. letter | Gruppe 2 Verarbeitung / Group 2 Transformation: Folgebuchstabe following letter |
|---|---|---|---|
| A | | | Grenzwert-Meldung ( alarm ) |
| B | | | opt. Binaeranzeige ( state display ) |
| C | | | selbsttaetige Regelung, fortlaufende Steuerung ( controlling ) |
| D | Dichte ( density ) | Differenz ( difference ) | ( drive ) |
| E | Elektrische Groessen ( electrical variables ) | | Aufnehmer-, Fuehler-Funktion ( sensing element ) |
| F | Durchfluss, Durchsatz ( flow throughput ) | Verhaeltnis ( ratio ) | |
| G | Abstand, Laenge, Stellung ( gauging, position, length ) | | |
| H | Handeingabe,Handeingriff (manual input,action) | | upper limit value (high) |
| I | | | Anzeige ( indicating ) |
| J | | ( scan ) | |
| K | Zeit ( time, time-program ) | | |
| L | Stand; Trennschicht ( level; interface) | | lower limit value (low) |
| M | Feuchte ( moisture, humidity ) | | |
| N | frei verfuegbar ( user's choice ) | | frei verfuegbar ( users choice ) |
| O | frei verfuegbar ( user's choice ) | | Sichtzeichen, Ja/Nein-Aussage (marker, YES/NO display, not an alarm) |
| P | Druck ( pressure, vacuum ) | | ( test point connection ) |
| Q | Qualitaetsgroessen: Analyse, Stoffeigenschaft ausser D,M,V (material property quality variable analysis,concentration,conductivity;except D,M,V) | Integral, Summe ( integrate, totalize ) | ( integrating, summating ) |
| R | Strahlungs-Groessen ( radiation variables ) | | Registrierung ( recording ) |
| S | Geschwindigkeit, Drehzahl, Frequenz ( rate, number of revolutions, frequency ) | | Schaltung, nicht fortlaufende Steuerung ( switching ) |
| T | Temperatur ( temperature ) | | Messumformer-Funktion ( transmitting ) |
| U | zusammengesetzte Groessen (composite variable) | | (summarized drive functions) |
| V | Viskositaet ( viscosity ) | | Stellgeraete-Funktion ( valve, damper, louvre, actuating element, unspecified correcting unit ) |
| W | Gewichtskraft, Masse ( weight, load, force ) | | |
| X | sonstige Groessen ( unclassified variables ) | | sonstige (Verarbeitungs-)Funktion ( unclassified functions: tv-camera, cathode-ray-tube, radioactive source ) |
| Y | frei verfuegbar ( user's choice ) | | Rechenfunktion ( computing, relay ) |
| Z | | | Noteingriff, Sicherung d. Ausloesung ( emergency, safety acting ) |
| + | | | oberer Grenzwert (upper limit value) |
| – | | | unterer Grenzwert (lower limit value) |
| / | | | Zwischenwert (intermediate value) |

Darstellung von MSR-Symbolen Instrument ballon Symbols

| | oertlich / field mounted | in zentralem Leitstand / pimary location | in lokaler Warte (Schaltschrank) / auxiliary location |
|---|---|---|---|

Liefergrenze limit of supply — Dürr / customer

Qualitäts-buchstabe (ausserhalb d. Kreises) quality letter ( outside circle )
CD = conductivity — Leitfähigkeit
pH = pH-value — pH-Wert

### Stellantriebe nach DIN 19 227 — actuators

| | |
|---|---|
| Stellantrieb, allg. | actuator, general |
| handbetätigt | manual operated |
| Magnetantrieb | solenoid operated |
| Pneumatikantrieb allgemein | pneumatic actuator general |
| Pneumatikzylinder | pneumatik piston actuator |
| Membranantrieb | diaphragm actuator |
| el. Motorantrieb | el. actuator |
| Federbelastet | spring loaded |
| kraftlos offen | powerless open |
| kraftlos geschlossen | powerless closed |

### Rückschlagarmaturen nach DIN — check valves

| | |
|---|---|
| Rückschlagarmatur allgemein | check valve general |
| Rückschlagventil | check valve ball type |
| Rückschlagklappe allgemein | check valve swing type |
| Sicherheitsventil | safety valve |
| Armatur m. stetigem Stellverhalten | valve, general continuously operated |
| Überdrucksicher-heitsventil, Eckform | safety valve, spring loaded, angle pattern |
| Druckregler | pressure controller |

### Absperrarmaturen nach DIN 28004 — Shut-off valves ISO 10628

| | |
|---|---|
| Absperrarmatur allg. | valve general |
| Absperrventil | globe valve |
| Absperrkugelhahn | ball valve |
| Absperrklappe | butterfly valve |
| Schieber | gate valve |
| Absperrarmatur in Eckform allg. | angle valve |
| Dreiwegearmatur allgemein | three-way valve general |
| Schauglas | sightglas |

### Apparate nach DIN 28004 — equipment

| | |
|---|---|
| Ventilator, allg. | fan, general |
| Motor | motor |
| Frequenzumrichter | variable frequency drive |
| Zyklon | cyclone |
| Explosionssicherung | explosion-proof flame arrestor |
| Detonationssicherung | detonation-proof flame arrestor |
| Tropfenabscheider | demister |
| Mischkammer | mixing chamber |
| Wärmetauscher | heat exchanger |
| Schalldaempfer | silencer |
| Luftfilter | air filter |
| Flüssigkeitsfilter | strainer, liquids |
| Filter | filter, general |
| Schmutzfänger | strainer, solids |
| Kondensat-Ableiter | steam trap |
| Schlauch | flexible hose |
| Ablauf | tundish |
| Blende | orifice plate |
| Reduzierung | reducer |
| Entlüftung | vent |
| Kompensator | compensator |
| Flanschpaar | flanges |
| Flansch/Meßstutzen | flange/ measuring point |
| Öler | oiler |

### Rohrleitungs-Kennzeichnung

6.0-01-DN1250-B
- Medienschlüssel: 1 Wasser, 2 Abwasser, 3 Druckluft/Stickstoff, 4 Öl, 5 Erdgas, 6 Abluft, 7 Chemikalien, 8 Frischluft, 9 Dampf
- fortlaufende Nummer
- Dimension
- Werkstoffschlüssel: A Stahl, B Stahl verzinkt, C Edelstahl, D Kunststoff

### Identification of Pipes

6.0-01-DN1250-B
- Fluid Key: 1 Water, 2 Waste Water, 3 Compressed Air, 4 Oil, 5 Natural Gas, 6 Exhaust Air, 7 Chemicals, 8 Fresh Air, 9 Steam
- Counter
- Dimension
- Material Key: A Steel, B Steel Galvanized, C Stainless Steel, D Synthetic Material

| Stream No. | | 3.0 | 3.01 | 3.1 | 3.11 | 3.12 | 3.13 | 5.0 | 5.01 | 5.02 | 6.0 | 6.1 | 6.2 | 6.01 | 6.02 | 6.03 | 6.04 | 6.05 | 6.31 | 6.41 | 6.42 | 6.43 | 7.01 | 7.02 | 8.01 | 8.02 | 8.03 | 8.04 | 8.05 | 8.06 | 8.07 | 8.11 | 9.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Medium | | instrumet air | atomizing air | nitrogen | nitrogen | nitrogen | nitrogen | natural gas | natural gas | Pilot gas | off gas | from V-450 | from C-561 | off gas | off gas | off gas | off gas | off gas | relief header | oxygen rich OG | oxygen rich OG | oxygen rich OG | waste liquid | waste liquid | combustion air | combustion air | air mixed gas burner | Secondary comb. Air | air waste liquid | air for O2-rich OG | air for pilot burner | quench air | clean air |
| Flow rate | design | 10 | 40 | 80/ | 80/ | 5/ | 10/ | 120/ | 120/ | 8/ | 238 / 482 | neglibale | 124 kg/h | 260 | 260 | 260 | /20 | /200 | ?? | 69 / 87 | 119 / 150 | 119 / 150 | / 124 | / 124 | 9000 / | 9000 / | 3500 / | 5500 / | 1500 / | 50 / | 60 / | 11000 / | 20.700 / |
| | nominal | 40/ | 30/ | 80/ | 80/ | 5/ | 10/ | 120/ | 120/ | 8/ | 238 / 482 | | 7,98 / | 238 / 482 | 238 / 482 | 238 / 482 | - | - | ?? | 69 / 87 | 69 / 87 | 0 / 0 | / 124 | / 124 | 1500 / | 1500 / | 585 / | 915 / | 100 / | 50 / | 60 / | 11000 / | 13440 / |
| Nm³/h / kg/h | min. | 10 | | - | - | - | | 8 | | | 50/ 27 | - | - | 85 / 106 | 0 | 0 | 0 | 0 | 2,0 / 2,5 | - | - | - | / 0 | / 0 | 1500 / | 1500 / | 585 / | 915 / | 100 / | 50 / | 60 / | 11.000 | 13440 / |
| Temperature | design | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 300 | 20 | 20 | 200 | 200 | 200 | 20 | 200 | 300 | 200 | 200 | 200 | 100 | 100 | 40 | 40 | 40 | 40 | 40 | 40 | 60 | 40 | 600 |
| | nominal | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 100 | - | - | 150 | 100 | 100 | 20 | 20 | 100 | 100 | 100 | 200 | 50 | 50 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 175 |
| [ °C ] | min. | -20 | -20 | -20 | -20 | -20 | -20 | -20 | -20 | -20 | -53 | - | - | -40 | -40 | -40 | -40 | -40 | -53 | -20 | -20 | -20 | -40 | -40 | -20 | -20 | -20 | -20 | -20 | -20 | -20 | -20 | -20 |
| Pressure | design | 10.000 | 10.000 | 22.500 DP | 5.000 | 5.000 | 5.000 | 4.000 | 4.000 | 4.000 | 5.000 | 5.000 | 5.000 | 5.000 | 5.000 | 5.000 | 5.000 | 5.000 | 5.000 | 250 | 250 | 250 | 5.000 | 5.000 | 90 | 90 | 30 | 30 | 90 | 90 | 90 | 30 | -10 |
| | nominal | 6.000 | 4.000 | 15.000 | 4.000 | 4.000 | 4.000 | 300 | 300 | 300 | 250 | 250 | 250 | 250 | 250 | 250 | 3.500 | - | - | 60 | 60 | 5 | 5.000 | 5.000 | 30 | 30 | 5 | 5 | 30 | 30 | 30 | 15 | -5 |
| [ mbar g ] | min. | 5.000 | | - | - | - | | - | | | - | - | - | 50 | 50 | 50 | 0 | 0 | 0 | - | - | - | - | - | 30 | 30 | 5 | 5 | 30 | 30 | 30 | 15 | -5 |
| Density | nominal | 1,273 | 1,273 | 1,250 | 1,250 | 1,250 | 1,250 | hold | hold | hold | 2,03 | 2,03 | - | 2,03 | 2,03 | 2,03 | 1,25 | 2,14 | 2,03 | 1,27 | 1,27 | 1,27 | 1.000 | 1.000 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 |
| | max. | - | | - | - | - | | - | | | 2,024 | | 779,20 | 2,024 | 2,024 | 2,024 | 1,250 | 1,250 | - | 1,27 | 1,27 | 1,27 | 700 | 700 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 | 1,27 |
| [ kg/Nm³ ] | min. | - | | - | - | - | | - | | | 1,269 | | - | 1,269 | 1,269 | 1,269 | 1,250 | 1,250 | - | | | | 600 | 600 | - | - | - | - | - | - | - | - | - |

| Kurzzeichen | Identification number | MA132-B100 | MA132-B200 | MA132-B300 | W141-V101 | VQ112-V101 | WG556-X100 | BK126-X200 | BK126-X100 | KA190-X200 |
|---|---|---|---|---|---|---|---|---|---|---|
| Benennung | Denomination | KO-V950 | KO-V951 | KO-V950A | blower combustion air | blower cooling air | burner | waste liquid injection | combustion chamber | stack |
| Technische Daten | Technical Data | 0,43 m³ | 4,3 m³ | 0,23 m³ | 10000 Nm³/h | 11.000 Nm³/h | 9.500 Nm³/h | 1.500 Nm³/h | 10.000 Nm³/h | 21.000 Nm³/h |
| | | ø18"x2425 mm | ø52"x3230 mm | ø18"x1275 mm | Δp 45 mbar | Δp 15 mbar | DN800 x 2215 mm | DN200 x 350 mm | ø1720 x 5000 mm | ø1,30 x 31 m |
| zulässiger Betriebsüberdruck (mbarg) | Max. permanent working pressure (mbarg) | 5000 | 5000 | 5000 | Δp 50 mbar | Δp 17 mbar | 99 mbar g | 99 mbar g | 99 mbar g | 10 mbarg main stack, 5 bar emergency stack |
| Maximale zulässige Betriebstemperatur (°C) | Max. permanent working temperature (°C) | 200 | 200 | 200 | 40 °C | 40 °C | 1200 °C | 400 °C | 1200 | 600°C main stack, 300°C emergency stack |
| Minimale zulässige Betriebstemperatur (°C) | Min. permanent working temperature (°C) | -40 | -40 | -40 | -20 °C | -20 °C | -20 °C | -20 °C | -20 °C | -10°C main stack, -53°C emergency stack |
| Werkstoff | Material | 1.4404 (SS316L) | 1.4404 (SS316L) | 1.4404 (SS316L) | carbon steel | carbon steel | Casing CS, internal SS | Casing CS, internal SS | Shell CS | 1.xxxx |
| Bemerkung | Note | | | | | | Internal shirts cooled by combustion air with ambient temperature | liquid gun SS | internal insulation of ceramic fibre | 2 inliners ø900 ø200 internal insulation |

| ISSUE | AMENDMENT | DATE | NAME |
|---|---|---|---|
| G | TUEV NOTES | 2013-10-30 | DEBIE2ESCH |
| F | HAZOP NOTES/FINAL DESIGN MANUFACTURING | 2013-09-27 | DEBIEKLG |
| E | REVISION | 2013-05-14 | DEBIEJAG |
| D | see clouds | 2013-04-09 | DEBIEKLG |
| C | off gas train, several changes | 2013-03-18 | DEBIEKLG |

| | | |
|---|---|---|
| DRAWN | 2013-01-15 | DEBIEESCH |
| CHECKED | 2013-10-30 | DEBIE2HEVO |
| RELEASED | 2013-10-30 | DEBIE2ESCH |
| STATUS | RELEASED | |

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# VAR
# COMBUSTION CHAMBER

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SPIE Controlec Eng., NL für Shell
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VERSION 08 DOC. PART 001
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