

DIN EN 12514:2022-01 (E)

Components for supply systems for consuming units with liquid fuels (includes Corrigendum :2021)

Contents		Page
European foreword.....		7
Introduction		9
1	Scope.....	10
2	Normative references.....	11
3	Terms, definitions, symbols and abbreviated terms.....	16
3.1	Terms and definitions	16
3.1.1	General.....	16
3.1.2	Components	18
3.1.3	Pipeline.....	22
3.1.4	Control and safety devices for feed pumps.....	23
3.1.5	Supply systems.....	25
3.1.6	Pressure related terms	26
3.1.7	Temperature related terms.....	28
3.1.8	Flow related terms.....	28
3.1.9	Other terms	29
3.2	Symbols and abbreviated terms	31
4	Characteristics	32
4.1	General.....	32
4.2	Reaction to fire.....	32
4.3	Tightness in case of fire	32
4.4	Crushing strength.....	32
4.5	Internal pressure strength	33
4.5.1	Characteristics for pressurised systems.....	33
4.5.2	Characteristics for negative pressurised systems.....	34
4.6	External pressure strength.....	34
4.7	Longitudinal bending strength.....	34
4.8	Maximum load for admissible deformation	34
4.9	Dimensional Tolerance.....	35
4.10	Impact resistance	35
4.11	Electrostatic behaviour.....	35
4.12	Tightness.....	35
4.12.1	External tightness	35
4.12.2	Internal tightness.....	36
4.13	Permeability	36
4.14	Effectiveness of safety devices.....	37
4.14.1	Control and safety devices for feed pumps.....	37
4.14.2	Pressure compensating device.....	38
4.14.3	Anti-siphon safety device	39
4.14.4	Remote acting fire safety valve	42
4.14.5	Safety shut-off device.....	42
4.15	Release of dangerous substances.....	42
4.16	Noise level.....	42
4.17	Durability.....	43
4.17.1	Durability against chemical attack.....	43
4.17.2	Durability against external corrosion	45

4.17.3	Durability in case of extended temperatures.....	45
4.17.4	Durability against ultraviolet light.....	46
4.17.5	Durability against nominal lifetime operation.....	46
4.17.6	Resistance to humidity	50
5	Testing, assessment and sampling methods.....	50
5.1	General tests.....	50
5.1.1	General	50
5.1.2	Visual inspection.....	50
5.1.3	Dimensional test	50
5.2	Reaction to fire	50
5.3	Tightness in case of fire	51
5.4	Crushing strength	51
5.4.1	Purpose of chrushing strength test for pipeline connections	51
5.4.2	Test method.....	51
5.5	Internal pressure strength.....	51
5.5.1	Pressure test.....	51
5.5.2	Vacuum test	54
5.6	Testing of external pressure strength (Flood resistance)	55
5.6.1	Test purpose.....	55
5.6.2	Test procedure	55
5.6.3	Test pressure.....	55
5.6.4	Test duration.....	55
5.7	Longitudinal bending strength.....	55
5.8	Maximum load for admissible deformation	55
5.9	Dimensional Tolerance	55
5.10	Impact resistance	55
5.11	Electrostatic behaviour	55
5.12	Tightness.....	55
5.12.1	General	55
5.12.2	External tightness test.....	56
5.12.3	Internal tightness test.....	58
5.13	Permeability test	59
5.14	Effectiveness of safety devices.....	59
5.14.1	Control and safety devices for feed pumps	59
5.14.2	Pressure compensating device	61
5.14.3	Anti-siphon safety device.....	62
5.14.4	Remote acting fire safety valve.....	66
5.14.5	Safety shut-off device	68
5.15	Release of dangerous substances	68
5.16	Noise level	68
5.16.1	Test purpose.....	68
5.16.2	Test procedure	68
5.17	Durability	69
5.17.1	Durability against chemical attack.....	69
5.17.2	Durability against external corrosion.....	72
5.17.3	Durability in case of extended temperatures.....	72
5.17.4	Durability against ultraviolet light.....	72
5.17.5	Durability against nominal lifetime operation.....	72
5.17.6	Resistance to humidity	78
5.18	Additional requirements	78
5.18.1	Construction requirements	78
5.18.2	Maximum/minimum allowable temperature	79

5.18.3	Flow resistance	79
5.18.4	Environmental considerations.....	82
5.18.5	Electrical safety.....	82
5.18.6	Instruction for installation, operation and maintenance.....	82
5.19	Functional requirements.....	82
5.19.1	Feed pump	82
5.19.2	Service tank.....	82
5.19.3	Service vessel.....	83
5.19.4	Isolating valve	83
5.19.5	Quick-acting valve.....	83
5.19.6	Switch-over valve	83
5.19.7	Forced switch-over valve	83
5.19.8	Check valve	83
5.19.9	Discharge valve	83
5.19.10	Pressure reducer	85
5.19.11	Filter	87
5.19.12	Meter	88
5.19.13	De-aerator	88
5.19.14	Insulating device	90
5.19.15	Pressure gauge.....	90
5.19.16	Vapour/air separator	90
5.19.17	Pressure control path.....	90
5.19.18	Pressure retaining device.....	91
5.19.19	Pipe	92
5.19.20	Type testing for pipeline connections.....	92
5.19.21	Combined component	94
5.19.22	Withdrawal device	94
6	Assessment and verification of constancy of performance (AVCP)	94
6.1	General.....	94
6.2	Type testing.....	94
6.2.1	General.....	94
6.2.2	Test samples, testing and compliance criteria	95
6.2.3	Test reports.....	129
6.2.4	Shared other party results.....	129
6.2.5	Cascading determination of the product type results	130
6.3	Factory production control (FPC)	131
6.3.1	General.....	131
6.3.2	Requirements	131
6.3.3	Product specific requirements.....	134
6.3.4	Initial inspection of factory and of FPC	134
6.3.5	Procedure for modifications	135
6.3.6	One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity	135
7	Marking, labelling and packaging	136
7.1	General.....	136
7.2	Marking.....	136
7.3	Packaging.....	138
8	Additional and functional requirements.....	138
8.1	Additional requirements.....	138
8.1.1	Construction requirements.....	138
8.1.2	Maximum/minimum allowable temperature.....	138
8.1.3	Flow resistance	139

8.1.4	Environmental considerations	141
8.1.5	Electrical safety	142
8.1.6	Instruction for installation, operation and maintenance	142
8.2	Functional requirements	142
8.2.1	Feed pump	142
8.2.2	Service tank	144
8.2.3	Service vessel	145
8.2.4	Isolating valve	145
8.2.5	Quick-acting valve	145
8.2.6	Switch-over valve	145
8.2.7	Forced switch-over valve	145
8.2.8	Check valve	145
8.2.9	Discharge valve	146
8.2.10	Pressure reducer	147
8.2.11	Filter	149
8.2.12	Meter	151
8.2.13	De-aerator	151
8.2.14	Insulating device	152
8.2.15	Pressure gauge	152
8.2.16	Vapour/air separator	152
8.2.17	Pressure control path	153
8.2.18	Pressure retaining device	153
8.2.19	Pipe	153
8.2.20	Pipeline connections	154
8.2.21	Combined component	158
8.2.22	Withdrawal device	158
Annex A	(informative) National technical documents for liquid fuels	160
A.1	General	160
A.2	Category A: Liquid fuels derived from petroleum refining processes	160
A.3	Category B: Liquid fuels from renewable resources	161
A.4	Category C: Combinations of category A and B	161
Annex B	(normative) Metallic materials for components and parts	162
Annex C	(normative) Instructions for installation, operation and maintenance	179
C.1	General	179
C.2	Contents	179
Annex D	(informative) Examples for the installation of the components in supply systems	182
Annex E	(informative) Environmental aspects	191
Annex F	(informative) Environmental checklist	192
Annex G	(informative) Vocabulary	194
Annex H	(normative) Machine safety requirements and/or protective measures	198
H.1	General	198
H.2	List of significant hazards	198
H.3	Safety requirements and /or protective measures	199
H.3.1	General	199

H.3.2	Mechanical safety, stability and control devices	199
Annex I	(normative) Rigid metallic pipes within the scope of EN 12514.....	201
I.1	Rigid metallic pipes for above ground installations.....	201
I.1.1	General.....	201
I.1.2	Rigid metallic pipes from non-alloy and alloy steels	201
I.1.3	Pipes from stainless austenitic steels.....	201
I.1.4	Copper and copper alloy pipes.....	201
I.1.5	Aluminium pipes	201
I.2	Rigid metallic pipes for underground installations	201
Annex J	(informative) Union nut G 3/8 with 60° internal cone as pipeline connection	202
Annex K	(informative) Stud connectors with sealing ring	203
K.1	General.....	203
K.2	Stud end of stud connector	203
K.3	Sealing ring.....	204
K.3.1	Dimensions and designation.....	204
K.3.2	Materials.....	205
Annex L	(informative) Compression fittings for components with G 3/8 internal thread.....	206
L.1	General.....	206
L.2	Materials.....	206
L.3	Design types	206
L.3.1	Design type G	206
L.3.2	Design type A	208
L.3.3	Design type O	210
Annex M	(informative) Stud connectors with o-ring.....	212
M.1	General.....	212
M.2	Port.....	212
M.3	O-Ring.....	214
M.4	Material.....	214