Making our world
more productive

Product Catalogue.

Gas Welding, Cutting, Soldering and Heating.

Contents.

Introduction.

Equipment and accessories for welding, cutting, soldering and heating.

Linde offers a wide range of cutting and welding products in the Nordic countries and Baltics that are intended for welding, cutting and soldering techniques, as well as the related processes using fuel gases, oxygen, shielding gases or air.

When supplying a broad line-up of welding equipment, compliance with safety regulations must be ensured in order to protect the individual working with gases.

All equipment products are designed and manufactured according to EN and CE standards with safety in focus. By purchasing Linde gas equipment, you are making an investment in your future. Our premium products will help to increase your productivity in a manner that is ergonomic and user-friendly.

All Linde gas regulators, torches, torch shanks and cutting attachments come with a two year conditional warranty.

How to Order.

Doing business with us is easy. To place an order or get information, you can contact us in a way that suits you through our various touch points.

You can check your nearest Linde agents from your local Linde website.

Interested in ordering online?
Please visit your local Linde website to see the available online ordering options.

General Information

Quality system
Linde is ISO 9001 certified for our work with sales, distribution and the manufacture of industrial and medical gases, as well as associated equipment. This means that all our products and services must be of sufficient quality to meet both our customers' needs and the requirements of the authorities.

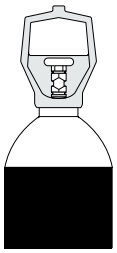
Environmental Policy
Linde is certified in accordance with ISO 14001. Linde's objective is to lead the way in the field of environmentally-conscious industrial gas engineering; for example, by using gas engineering as a basis for helping customers to introduce new, improved technologies and relieve the load on the environment.

Miscellaneous
It is important for purchasers and users to keep up-to-date with regards to which safety regulations apply to the use and transport of equipment and gases. Linde is not responsible for any personal injury and/or damage to property that may arise during the use of products contained in the catalogue or in conjunction with work processes.

The version, design and function of the products may differ from the information presented in this catalogue as a result of product development and new requirements from the authorities. Linde reserves the right to make amendments within its product range. Local deviations may occure.

For further information, visit our websites:
www.aga.se, www.aga.fi, www.aga.no, www.aga.dk,
www.linde-gas.lt, www.linde-gas.lv, www.linde-gas.ee, www.linde-gas.is

X11 Overview.

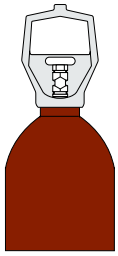


Oxygen

Fixicontrol Ox, 4 Bar HT
331290

Unicontrol 500 Ox, 10 Bar HT
309226
Hexagonal nut
309228

SAFE-GUARD-5 Ox
332142



Acetylene

Fixicontrol Ac HT
331291

Unicontrol 500 Ac HT
309257
Hexagonal nut
309227

SAFE-GUARD-5 Ac
332143

Accessories	
Gas lighter	300895
Cleaning needle	305435
Gas saver GS 10	300838

Multiple flame heating attachments, Acetylene	
l/h	
500	300357
800	300359
1 000	300448
Multiple Flame heating attachments, Propane	
90	300410
1000	300351

Accessories	
Circle-cutting support for hole diametres Ø 60–600 mm	300419
Cutting support, graduated	300414
Support for hole-cutting attachment, hole diametres Ø 20–60 mm	300406

Cutting nozzle HP 433 Propane		
	mm	2 pcs
HP 433-1	1–3	315454
HP 433-2	3–8	315455
HP 433-3	8–20	315456
HP 433-4	20–50	315457

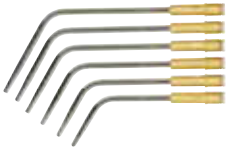
Read more about X11 on page 27

Twin hose 5 m, Ø 5.0 mm with
compression couplings
and non-return valves
307680

BV 12 G ¼" Non-return valves
Ø 5.0 mm
300386

Handle with non-return valves
BV 12 O 5 mm and clamp coupling
300447

Welding



Flexible welding attachments		
l/h	mm	
80	0.5–1.0	300409
160	1.0–2.0	300422
315	2.0–4.0	300424
500	4.0–6.0	300435
800	6.0–9.0	300434
Double flexible welding attachments		
160 x 2	1.0–2.0	307360
Flexible welding attachments with hard tip		
160	1.0–2.0	329614
230	2.0–3.0	335102
315	3.0–4.0	329615
500	4.0–6.0	329616

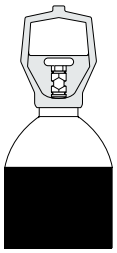
Welding attachments		
l/h	mm	
40	0.2–0.5	300388
80	0.5–1.0	300390
160	1.0–2.0	300392
230	1.5–3.0	300402
315	2.0–4.0	300394
400	3.5–5.0	300368
500	4.0–6.0	300396
650	5.0–7.0	300391
800	6.0–9.0	300398
1000	8.0–12.0	300400
1250	9.0–14.0	300436

Cutting

Cutting nozzle HA 411 Acetylene		
	mm	2 pcs
HA 411-1	1–3	315439
HA 411-2	3–8	315450
HA 411-3	8–20	315451
HA 411-4	20–50	315452
HA 411-5	50–100	315453

Cutting attachments	
90° Acetylene lever	300374
90° Propane lever	300373

X21 Overview.

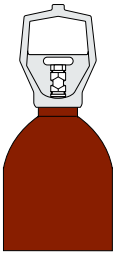


Oxygen

Unicontrol 500 Ox HT
309226
Hexagonal nut
309228

SMOOTHFLO®
ODOROX® /Oxygen
332999

SAFE-GUARD-5 Ox
332142



Acetylene

Unicontrol 500 Ac HT
309257
Hexagonal nut
309227

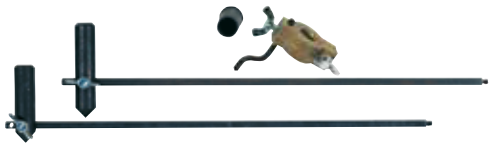
SMOOTHFLO®
Acetylene
333000

SAFE-GUARD-5 Ac
332143

Multiple flame heating attachment – Propane	
l/h	
1000	300494
2000	300493
4000	300491
7000	300489

Multiple flame heating attachments – Acetylene	
l/h	
1000	300545
1800	334436
2500	300543
5000	300541

Single flame heating attachments – Acetylene	
l/h	
1800	300542
2500	300525
5000	300547



Accessories	
Double cutting support, adjustable with small wheels	300576
Double cutting support with large wheels	300584
Double cutting support, adjustable with large wheels and graduation	300510
Cutting support with centre holder for large wheels	300575
Cutting support with centre holder for small wheels	300564
Support for hole-cutting attachment 0° (wheel diametre Ø 20–100 mm)	300572
Spacer sleeve	300568

Cutting nozzle	COOLEX® P 311 Propane	
	mm	
P 331-1	1–3	300675
P 331-2	3–10	300676
P 331-3	10–25	300668
P 331-4	25–50	300674
P 331-5	50–100	300671
P 331-6	100–200	300670
P 331-7	200–300	300669
P 331-8	300–500	300672

Read more about X21 on page 34

Twin hose 10 m
with hose couplings
Ø 6.3 mm
305034

BV 12 G ⅜" Non-return valves
Ø 6.3 x 6.3 mm
300522
Ø 8.0 x 8.0 mm
300553

X21 Handle with
non-return valve BV 12 O 6.3
Round
300581
Oval
308543

Welding

Flexible welding attachments		
l/h	mm	
160	1.0–2.0	300583
315	2.0–4.0	300600
500	4.0–6.0	300599

Welding attachments		
l/h	mm	
40	0.2–0.5	300578
80	0.5–1.0	300582
160	1.0–2.0	300596
230	2.0–3.0	300605
315	2.0–4.0	300604
400	3.5–5.0	300603
500	4.0–6.0	300590
650	5.0–7.0	300594
800	6.0–9.0	300470
1000	7.0–10.0	300459
1250	9.0–14.0	300460

Cutting

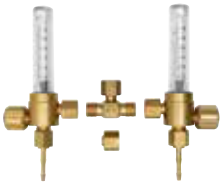
Cutting nozzle		HA 311 Acetylene
	mm	
HA 311-1	1–3	305847
HA 311-2	3–10	305853
HA 311-3	10–25	305849
HA 311-4	25–50	305852
HA 311-5	50–100	305834
HA 311-6	100–200	305843
HA 311-7	200–300	305841
HA 311-8	300–500	305832

Cutting attachments		
0°	lever	300487
45	lever	300554
75°	lever	300500
90°	lever	300569

MIG/MAG and TIG Welding – Overview.

PROSAVER® Regulator
Argon and MISON®
331001

PROSAVER® Double Flow
332331



Unicontrol 100 HT
Argon and MISON®
309260

Fits only to Unicontrol 100HT
Rotam Plus for Unicontrol
Single 300100
T-piece 300104

Unicontrol 300 HT
Argon and MISON®
309252

Test flow metre
for correct measurement
of gas flow
300766

PROSAVER®
GS40
adjustable
336322

PROSAVER®
GS40
fixed
336323

SMOOTHFLO®
MISON® /Argon
333843

Gas pre-heater
for large gas outlets
in a cold environment
CO_2
309450

Fixicontrol
Argon and MISON® HT
331292

Dry flow – Argon hose
Ø 5.0 mm, 10 or 50 metre
334496
Ø 6.3 mm, 10 or 50 metre
334498

Toolboxes.

Linde offer assorted toolboxes of welding equipment, where selected and most common components have been put together.

A further step has now been taken in toolbox development.
You should only pay for what you really need and so we have developed new toolboxes based on individual user needs.

The toolboxes are easy to use and easy to carry around for example when working in a mobile setting.

X11 Torch system.
X11 PRO.

334329

X21 Torch system.
X21 PRO.

336009

X11 Torch system.
X11 PRO PLUS.

334431

X21 Torch system.
X21 PRO PLUS.

336119

X11 Torch system.
X11 PRO FLEX.

334434

X21 Torch system.
X21 PROPANE.

336008

X11 Torch system.
X11 COMBI.

310133

X21 Torch system.
X21 COMBI.

316161

X11 Torch system.
FLAME® kit.

Incl. 5 l cylinders	323078
Excl. cylinders	334168

Reference to X11 page 28 and X21 page 35.

Linde Regulators.

Properties that characterise AGA regulators:

- → Adapted to and meet the requirements stipulated by the EN ISO 2503 standard
- → The regulator housing must be marked in accordance with the applicable standard
- → Approved in an oxygen shock test conducted by an independent testing institute
- → A filter within the regulator prevents particles from entering the seat

SMOOTHFLO® Regulators.

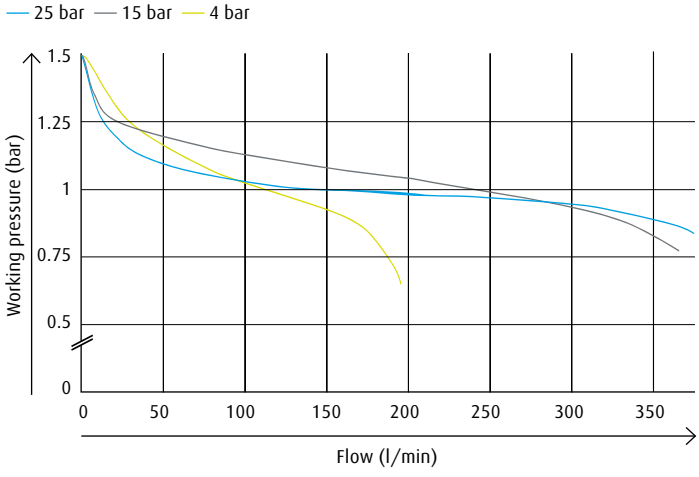
The SMOOTHFLO® gas pressure regulator represents the highest level of development in the global arena. Incorporating several patented world firsts, SMOOTHFLO® combines the best current regulator features with new customer-led innovative developments, making it one of the easiest products to use on the market. Manufactured and certified to ISO 2503 and AS 4267 and TUV approved, SMOOTHFLO® provides maximum regulator safety.

Features

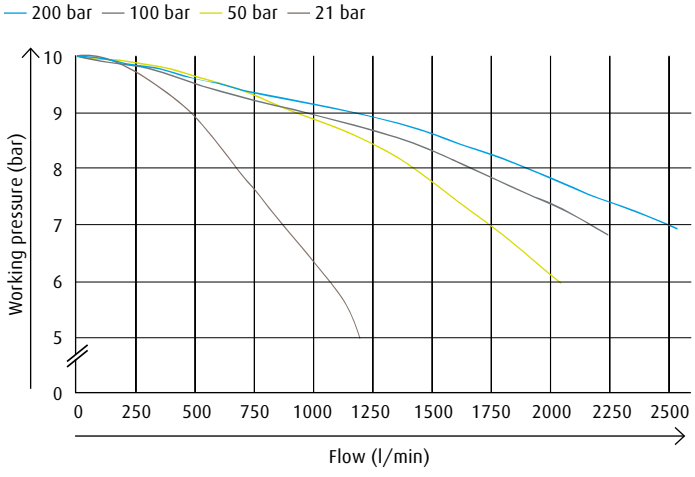
- Patented technology enables multi-stage type performance from a single-stage regulator
- Pressure adjusting knob mechanism that allows the maximum setting to be reached in less than three turns
- Break-off inlet stem – in the event that the regulator and connected cylinder are impacted by a fall, not only will the inlet stem break off to protect the regulator, but a high-performing excess-flow valve will automatically safely seal off gas discharge from the cylinder into the atmosphere
- Protective cladding – fabricated from impact resistant material. Splash and dust resistance ensures light and low maintenance

SMOOTHFLO®							
	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge (bar)	Connection			Part no.
				Inlet	Thread	Outlet	
Acetylen	0–1.5	0–40	0–2.2	G ¾"	Ext.	G ⅜" LH	333000
ODOROX® /Oxygen	0–10	0–230	0–16	W 21.8 x 1/14"	Int.	G ⅜"	332999

SMOOTHFLO® Acetylene



SMOOTHFLO® Oxygen



Unicontrol 500.


309257


309226


309227


309228

Unicontrol 500 is suitable for the majority of industrial gases and can cope with all gas welding, heating and soldering, as well as the gas cutting of materials up to a thickness of 300 mm.

Features

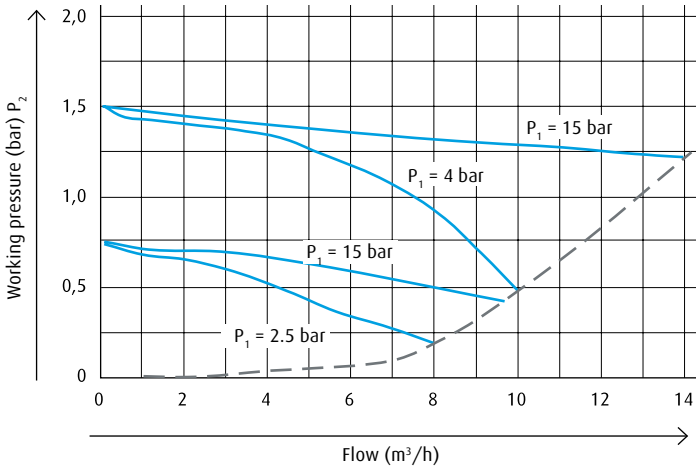
- → Unicontrol 500 is available in handtight or with hexagon nut
- → Stabile working flow and outlet pressure in the whole working area. Suitable for X11 and X21
- → Unicontrol 500 has easy-to-read pressure gauges and single wheel adjustment of the working pressure

Supplied with hose fittings for Ø 5.0 and 6.3 mm hose diametres, cap nuts and 3 extra O-rings or gaskets.

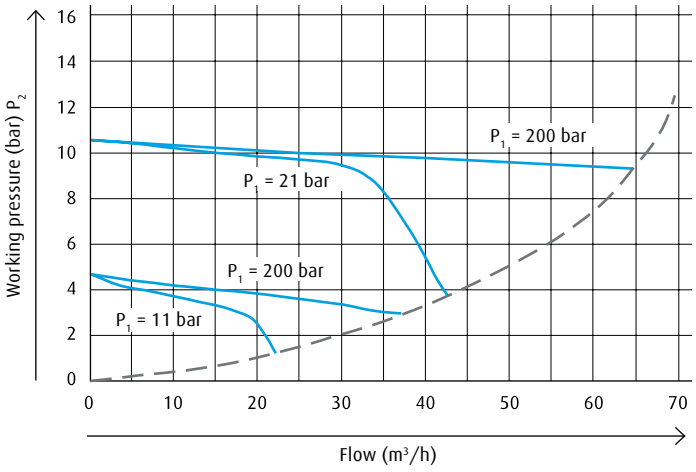
Unicontrol 500							
	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge (bar)	Connection			Part no.
				Inlet	Thread	Outlet	
HT nut*							
Acetylene	0–1.5	0–40	0–2.5	G ¾"	Ext.	G ⅜"LH	309257
Oxygen	0–10.0	0–315	0–16.0	W 21.8 x 1/14"	Int.	G ⅜"	309226
Hexagonal nut							
Acetylene	0–1.5	0–40	0–2.5	G ¾"	Ext.	G ⅜" LH	309227
Oxygen	0–10.0	0–315	0–16.0	W 21.8 x 1/14"	Int.	G ⅜"	309228
Argon, Nitrogen, Helium	0–10.0	0–315	0–16.0	W 24.32 x 1/14"	Int.	G ⅜"	309254
Nitrogen	0–2.0	0–315	0–6.0	W 24.32 x 1/14"	Int.	G ⅜"	309250
Carbon dioxide	0–10.0	0–315	0–16.0	W 21.8 x 1/14"	Int.	G ⅜"	309253
Air	0–10.0	0–315	0–16.0	G ⅝"	Ext.	G ⅜"	309256
Hydrogen	0–10.0	0–315	0–16.0	W 21.8 x 1/14" LH	Int.	G ⅜" LH	309255
Propane	0–2.5	–	0–6.0	(NGO) 0.885" x 1/14" LH	Ext.	G ⅜" LH	309229

* Handtight connection

Acetylene



Oxygen



The flow rate curve shows the change in working pressure in relation to the flow outlet.

Fixicontrol Handtight.

331290

331291

Fixicontrol HT is intended for small- to medium-sized gas outlets and copes with all gas welding, soldering, heating with nozzles max. 2.500 l/h and gas cutting of materials up to a thickness of 50 mm. The regulator has a handtight connection and is therefore very well-suited to small equipment that is frequently transported.

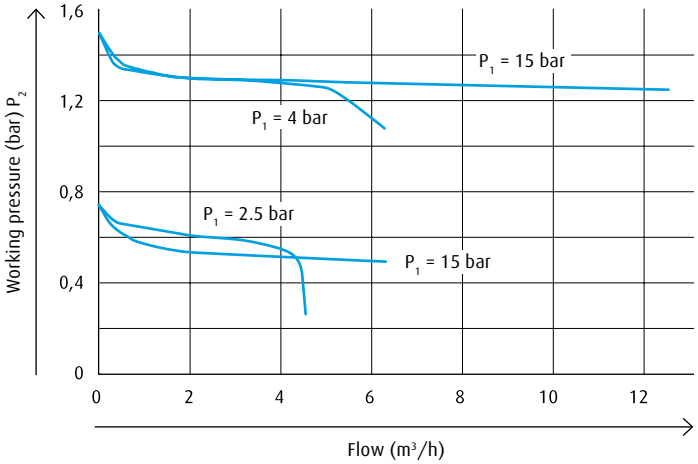
Features

- Fixicontrol HT is available for acetylene and oxygen. It comes with easy-to-read pressure gauges fitted with rubber protection
- Single wheel adjustment of the working pressure for straightforward usability
- Fixicontrol is suitable with X11

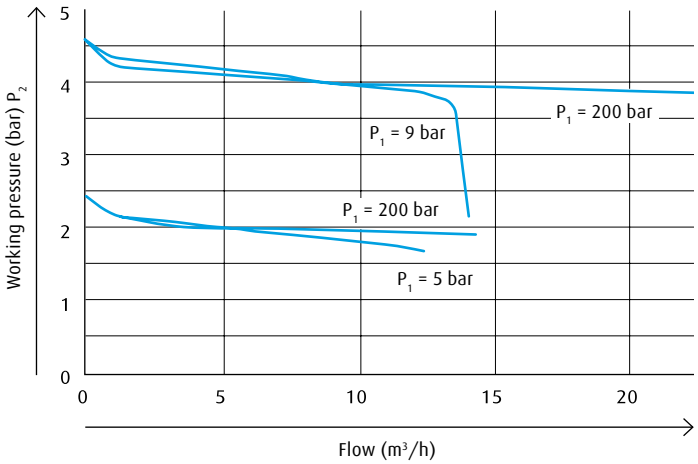
Supplied with pressure gauge protection, hose fitting for gas hose Ø 5.0 mm, cap nut and 3 extra O-rings.

Fixicontrol Handtight							
	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge (bar)	Connection			Part no.
				Inlet	Thread	Outlet	
Acetylene	0–1.5	0–40	0–2.5	G ¾"	Ext.	LH G ⅜"	331291
Oxygen	0–4.0	0–315	0–6.0	W 21.8 x 1/14"	Int.	RH G ⅜"	331290

Acetylene



Oxygen



The flow rate curve shows the change in working pressure in relation to the flow outlet.

Linde PRO 200/300.

The Linde PRO regulator series consists of premium cylinder regulators with high performance capacity, durability and quality. Due to their unique construction and technology, the regulators keep continuous pressure even with variations in cylinder pressure, which is an outstanding advantage for the user.

The PRO regulators are produced for a very wide range of industrial gases and specific pressure ranges. AGA PRO is intended for use with medium and high consumption of gas. The outlet is delivered with hose nipple 6.3 mm.Regulators for working pressure of more than 10 bar are delivered with 12 mm brazing nipple on outlet.

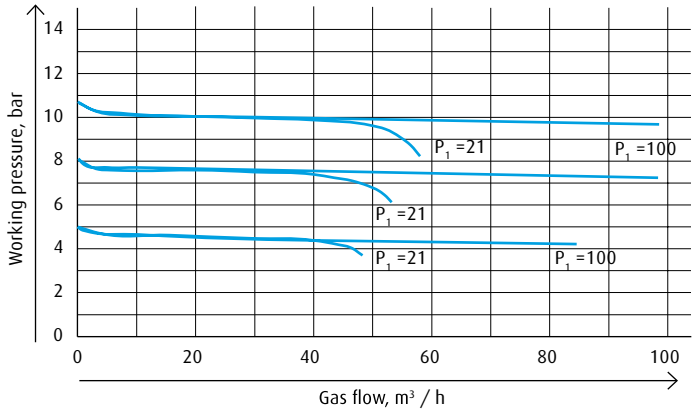
The unique and stable construction, combined with precise quality control, gives a product that is both long-lasting and reliable. The regulators are produced according to EN 2503 for safe handling of compressed gases. Oxy-fuel processes, welding and pressure testing are standard applications for Linde PRO. Suitable also for applications within high flow when bundle, such as in offshore, construction or building.

Features

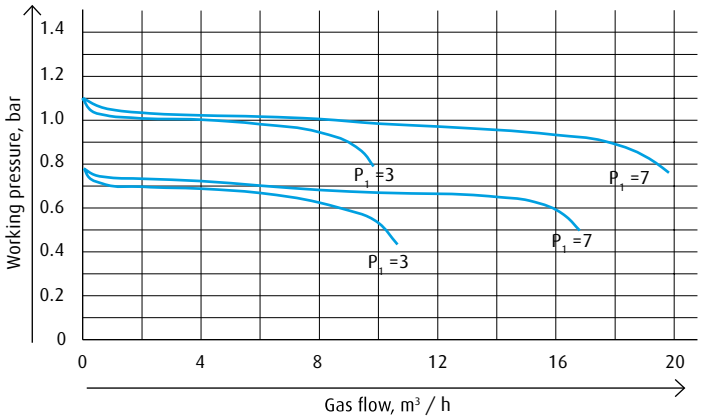
- Available in 300 bar with handtight connection
- Constant outlet pressure regardless of cylinder pressure
- High flame stability at high gas outlets and with long hoses
- Precise and stable welding/cutting flame saves time and increases productivity

	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge (bar)	Connection			Part no.
				Inlet	Thread	Outlet	
200 bar – Up to 10 bar							
Acetylene	0–1.5	0–40	0–2.5	G ¾"	Ext.	G ⅜" LH	333219
Oxygen	0–10	0–315	0–16	W 21.80 x 1/14" RH	Int.	G ⅜"	333231
Nitrogen	0–10	0–315	0–16	W 24.32 x 1/14" RH	Int.	G ⅜"	333227
Air	0–10	0–315	0–16	G ⅝" RH	Ext.	G ⅜"	333230
Hydrogen	0–10	0–315	0–16	W 21.80 x 1/14" LH	Int.	R ⅜" LH	333237
Carbon dioxide	0–10	0–315	0–16	W 21.80 x 1/14" RH	Int.	G ⅜"	333236
Argon/MISON®	0–10	0–315	0–16	W 24.32 x 1/14" RH	Int.	G ⅜"	333235
Oxygen	0–1	0–315	0–2.5	W 21.80 x 1/14" RH	Int.	G ⅜"	333221
Nitrogen	0–1	0–315	0–2.5	W 24.32 x 1/14" RH	Int.	G ⅜"	333218
THERMOLEN®	0–4	0–25	0–6.0	W 21.80 x 1/14" LH	Ext.	G ⅜" LH	333226
Propane	0–10	0–25	0–16	(NGO) 0.885" x 1/14"	Ext.	G ⅜" LH	333220
Argon/MISON®	0–24 L/min	0–315	0–28 L/min	W 24.32 x 1/14" RH	Int.	G ⅜"	333234
Argon/MISON®	1 x 0–24 L/min	0–315	1 x 0–30 L/min	W 24.32 x 1/14" RH	Int.	G ⅜"	333222
Argon/MISON®	2 x 0–24 L/min	0–315	2 x 0–30 L/min	W 24.32 x 1/14" RH	Int.	G ⅜"	333229
Carbon dioxide	0–1	0–315	0–2.5	W 21.80 x 1/14" RH	Int.	G ⅜"	333240
Air, Special design without hand wheel	0–12	0–315	0–16	G ⅝" RH	Ext.	G ⅜"	333242
200 bar – over 10 bar (note: A high pressure hose must be used to the outlet)							
Nitrogen	0–28	0–315	0–40	W 24.32 x 1/14" RH	Int.	G ⅜"	333239
Oxygen	0–28	0–315	0–40	W 21.80 x 1/14" RH	Int.	G ⅜"	333216
Nitrogen	0–40	0–315	0–60	W 24.32 x 1/14" RH	Int.	G ⅜"	333217
Oxygen	0–200	0–315	0–315	W 21.80 x 1/14" RH	Int.	G ⅜"	333233
Nitrogen	0–200	0–315	0–315	W 24.32 x 1/14" RH	Int.	G ⅜"	333225
Hydrogen	0–200	0–315	0–315	W 21.80 x 1/14" LH	Int.	G ⅜" LH	333238
Air	0–200	0–315	0–315	G ⅝" RH	Ext.	G ⅜"	333223
300 bar – Handtight connection							
Nitrogen	0–10	0–400	0–16	W30 x 2 RH NEVOC	Int.	G ⅜"	331921
Nitrogen	0–28	0–400	0–40	W30 x 2 RH NEVOC	Int.	G ⅜"	331922
Nitrogen	0–100	0–400	0–315	W30 x 2 RH NEVOC	Int.	G ⅜"	331923
Nitrogen	0–200	0–400	0–315	W30 x 2 RH NEVOC	Int.	G ⅜"	331920
Nitrogen	0–300	0–400	0–400	W30 x 2 RH NEVOC	Int.	G ⅜"	331959

Capacity curve AGA Pro regulator – Oxygen



Capacity curve AGA Pro regulator – Acetylene



Accessories for Pressure Regulators.

SMOOTHFLO®

Inlet stem, Nut, Gasket	Qty in SB	Part no.
Oxygen SMOOTHFLO®		333921
Acetylene SMOOTHFLO®		333957
Argon SMOOTHFLO®		333958
Outlet adapter		
Oxygen SMOOTHFLO®		333959
Acetylene SMOOTHFLO®		333943
Argon SMOOTHFLO®		333944
Gaskets		
SMOOTHFLO® Oxygen, Argon	10	333962
SMOOTHFLO® Acetylene	10	333922

Unicontrol 500 AND 600.

Content pressure gauge	Qty in SB	Part no.
Oxygen 0–315 bar		300038
Acetylene 0–40 bar		300048
Neutral 0–315 bar		300047
Working pressure gauge		
Oxygen 0–16 bar		300042
Acetylene 0–2.5 bar		300046
Neutral 0–16 bar		300045
Neutral 0–6 bar		300044
Pressure gauge protection		
Pressure gauge protection		300192
Gaskets		**Part no.**
Pressure gauge gasket		309524
Acetylene + Oxygen (nylon + aluminium)	5 + 5	300793
Oxygen + carbon dioxide (aluminium)	100	300055
	10	309372
Acetylene (nylon)	100	300054
	10	309373
Argon, air, hydrogen, nitrogen (nylon)	100	300053
	10	300089
O-rings – only for Unicontrol 500 HT		
Acetylene HT	10	300193
Oxygen, Argon HT, MISON® and MISON® mixtures (Unicontrol)	10	308384
Oxygen, Argon HT, MISON® and MISON® mixtures (Jetcontrol)	10	300194

Fixicontrol HT.

Content pressure gauge	Qty in SB	Part no.
Acetylene	40 bar	308265
Oxygen	315 bar	308740
Working pressure gauge		
Acetylene	2.5 bar	308741
Oxygen	6 bar	300223
O-rings		
Acetylene HT	10	300193
Oxygen, Argon HT as well as MISON® and MISON® mixtures	10	308384
Other		
Pressure gauge protection	1	309421

Linde PRO 200/300.

Content pressure gauge	Qty in SB	Part no.
Acetylene 0–40 bar		305368
Neutral 0–6 bar		305370
Neutral 0–40 bar		300085
Oxygen 0–315 bar		300087
Neutral 0–315 bar		300074
Working pressure gauge		
Oxygen 0–16 bar		305373
Neutral 0–16 bar		305371
Acetylene 0–2,5 bar		305372
Neutral 0–28 l/min		305367
Nipple for pressure gauge		
G ¼"		300249
Gaskets		
Acetylene (nylon)	10	300096
Oxygen and inert gases	10	303616
O-ring Linde PRO 300 bar	10	336292

CR 60

Content pressure gauge		
Oxygen/Argon	0–315 bar	300253
Acetylene	0–40 bar	300221
Working pressure gauge		
Oxygen/Argon	0–25 bar	300181
Acetylene	0–2,5 bar	300183
Gaskets		
Oxygen + carbon dioxide (aluminium)	10	309372
Acetylene (nylon)	10	309373
Argon, air, hydrogen, nitrogen (nylon)	10	300089

Regulators for Gas Shielded Arc Welding.

The gas supply to the gas shielded arc welding processes TIG, MIG/MAG and plasma is extremely important when it comes to the welding result. In order to satisfy these requirements, pure shielding gas is required in the gas cap, as are the correct gas flow and a certain amount of additional gas when starting welding.

The best results are achieved in the simplest manner with a short gas hose (as a rule, 1–1.5 m is sufficient) along with a small hose diametre, normally Ø 5.0 mm. This optimises the volume in which the "gas boost" is built up.

PROSAVER® is a regulator that works with a constant gas flow and produces an adapted working pressure with, technical and economic benefits as a result.

PROSAVER® Regulator.

PROSAVER® Regulator with integrated gas saver function for shielding gas with flow metre.

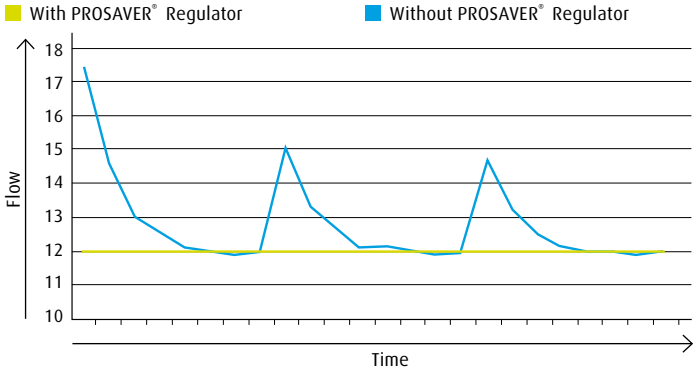
Features

- Produces an optimal gas flow for MIG/MAG and TIG welding
- Minimises the "gas boost" when starting the welding cycle, which produces savings as regards gas consumption
- Very even flow 3–30 l/min, regardless of the cylinder pressure
- Developed and adapted for MISON® shielding gases. Also works with other argon and argon mixtures

The greatest gas saving is achieved in the event of numerous short welds in a welding cycle. The size of the gas saving is dependent on the welding method, number of starts and stops, etc.

PROSAVER®					
	Content pressure gauge (bar)	Flow meter	Connection		Part no.
			Inlet	Outlet	
PROSAVER®	0–315	3–30 l/min	W 24.32 x 1/14"	G 3/8"	331001
PROSAVER® double flow	0–315	3–30 l/min	W 24.32 x 1/14"	G 3/8"	332331
PROSAVER® FORMIER®	0–315	3–30 l/min	W 21.8 x 1/14" LH	LH 3/8"	332330

Pulse welding with AGA PROSAVER®



Unicontrol 100 Handtight.

Unicontrol 100 HT is intended for MIG/MAG and TIG welding.

Features
- The regulator is available for MISON® and all mixtures of MISON®, argon and argon mixtures
- It is pre-set at a working pressure of 2.5 bar to produce an accurate flow setting
- Quick and fast installation without using any tools

The flow is read off at the upper edge of the ball/floating device. Supplied with hose fitting for a 5.0 mm hose diametre and 3 extra O-rings.

Unicontrol 100 Handtight						
	Content pressure gauge (bar)	Flow meter (l/min)	Connection Inlet	Thread	Outlet	Part no.
Argon	0–315	3–32	W 24.32 x 1/14"	Int.	R 3/8"	309260

Accessories – Rotam Plus.

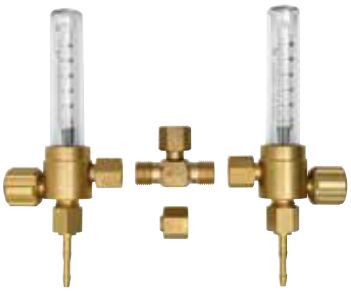
Rotam Plus is a flow metre that is used together with argon pressure regulator. The regulator working pressure must be set to 2.5 bar to produce the correct gas flow. Rotam is the suitable product when you have a pressure regulator and want to use it as a flow regulator.

Rotam must be connected to a T-piece, which can be used with one or two Rotams. The T-piece can be adjusted to achieve the correct angle in relation to the regulator's outlet. The T-piece is ordered separately.

The flow is read off at the upper edge of the ball/floating device. Double Rotam is used when shielding gas is required for both a welding gun and root protection. Supplied with a hose fitting for Ø 5.0 mm hose diametre.

Rotam Plus.

	Part no.
Single Rotam Plus	300100
Double Rotam Plus	300100 x 2
T-piece incl. blanking plug	300104
Blanking plug	301816



Spare Parts Kit for Rotam Plus and Unicontrol 100.

	Flow (l/min) (Working pressure bar)	Max. deviation at various flows (l/min)	Part no.
Flow metre assembly		5/±0.1	
Hexagonal body (Unicontrol 100)	30 (2.5)	15/±0.3	300195
Round body (Rotam)	30 (2.5)	25/±0.5	317302

SMOOTHFLO® Regulators.

The SMOOTHFLO® gas pressure regulator represents the highest level of development in the global arena.

Features
- → Pressure adjusting knob mechanism that allows the maximum setting to be reached in less than three turns
- → Break-off inlet stem
- → Protective cladding

Supplied with hose fittings for Ø 5.0 and 6.3 mm hose diametres, cap nuts and 3 extra O-rings.

SMOOTHFLO®							
	Work area	Content pressure gauge (bar)	Flow pressure gauge	Connection			Part no.
				Inlet	Thread	Outlet	
MISON® /Argon	0–45 l/min	0–230	0–55 l/min	W 24.32 x 1/14"	Inv	G 3/8"	333843

Unicontrol 300 Handtight.

Unicontrol 300 HT is available for MISON® Ar and all mixtures of MISON®, argon and argon mixtures, as well as carbon dioxide.

Features
- → The regulator has a content pressure gauge and a flow pressure gauge showing the gas flow in litres per minute, as well as single wheel adjustment of the gas flow
- → Unicontrol 300 HT is intended for MIG/MAG and TIG welding
- → Quick and fast installation without using any tools

Supplied with hose fittings for Ø 5.0 and 6.3 mm hose diametres, cap nuts and 3 extra O-rings.

Unicontrol 300 Handtight							
	Work area	Content pressure gauge (bar)	Flow pressure gauge (l/min)	Connection			Part no.
				Inlet	Thread	Outlet	
Argon/MISON®	0–25 l/min	0–315	0–45	W 24.32 x 1/14"	Int.	G 3/8"	309252
Carbon dioxide	0–25 l/min	0–315	0–45	W 21.8 x 1/14"	Int.	G 3/8"	309251

Fixicontrol Handtight.

Fixicontrol HT is intended for welding with MIG/MAG and TIG.

Features
- → Fixicontrol HT is available for MISON® Ar and all mixtures of MISON®, argon and argon mixtures, as well as carbon dioxide
- → Quick and fast installation without using any tools

The regulator has a content pressure gauge and rotametre showing the gas flow in litres/min, as well as an ergonomic wheel for regulating the flow.

Fixicontrol Handtight							
	Work area	Content pressure gauge (bar)	Flow pressure gauge (l/min)	Connection			Part no.
				Inlet	Thread	Outlet	
Argon	0–22 l/min	0–315	0–32	W 24.32 x 1/14" RH	Int.	G 3/8"	331292
Carbon dioxide	0–22 l/min	0–315	0–32	W 21.80 x 1/14" RH	Int.	G 3/8"	331293

Accessories: Regulators for Gas Shielded Arc Welding.

PROSAVER® GS40.

The prosaver GS40 is the leading accessory for shielding gas arc welding as MIG, MAG and TIG welding technologies. With its small and compact design, the GS40 can be installed downstream most common cylinder pressure regulators or outlet point regulators with fl ow control. GS40 stabilizes fl ow and optimises shielding gas pressure in the hose during welding process.

GS40 HELPS TO SAVE UP TO 40 % OF YOUR SHIELDING GAS!
The savings with GS40 represents up to 0,5ltr of the shielding gas on each average weld.

How to use it
When you close the gas flow at common pressure regulator during the welding process interruption, the outlet pressure in the connecting hose raises up much above the optimal level (acc. to ISO 2503 up to 30 %). Then the volume of the gas, higher than really needed, is blowing through the system after the welding process starts again by switching on the arc on the welding torch. GS40 minimises amount of such waste gas cumulated in the connecting hose. The optimal, predefined gas flow is delivered to the welding process during all its phases. Adjustable variant with the handwheel (GS40A) is to be used with regulators with flow-meter, fixed variant (GS40F) with regulators with litrescaled pressure gauge.

	Max inlet pressure	Inlet-/outlet connection	Part no.
PROSAVER® GS40 adjustable	30 bar	G ⅜"	336322
PROSAVER® GS40 fixed	30 bar	G ⅜"	336323

Test flow metre for Shielding Gases.

Test flow metre for shielding gas welding for argon and argon mixtures.

The measurement tube must be held vertically and directly against the welding gun's nozzle. The flow is read off in the middle of the ball. The measurement range is 5–25 l/min.

	Part no.
Test flow metre	300766

Gas Preheater.

Gas preheaters are used for large gas outlets of carbon dioxide when the cylinder regulator is significantly cooled.

The preheater has an output of 25 W and is thermostatically controlled at 70°C.

Capacity:	Carbon dioxide	1200 l/h
Threaded connection:	Carbon dioxide	W 21.80 x 1/14"
Electrical connection:	230 V, single phase and 25 W	

CE marked EN-61010 and insulation class IP 44. Supplied with 3 m cable and 4 gaskets.

	Part no.
Carbon dioxide	309450

Note!

Gas pre-heaters may not be used with oxygen or flammable gases.

PROSAVER®

Prosaver® spare parts	Qty in SB	Part no.
O-ring	10-pack	308384
Working pressure gauge neutral	0–315 bar	331294
Flow metre complete		331295
Control wheel		331296

Unicontrol 100 HT.

Pressure gauge for Unicontrol 100 HT.	Qty in SB	Part no.
Content pressure gauge	Ar/CO_2	309447
Flow metre assembly	Ar/CO_2	300195
O-rings		
Carbon dioxide, argon HT as well as MISON® and MISON® mixtures	10	308384

SMOOTHFLO® – MISON®/Argon.

Inlet stem, nut, gasket	Qty in SB	Part no.
Argon SMOOTHFLO®		333958
Outlet adapter		**Part no.**
Argon SMOOTHFLO®		333944
Gasket		
SMOOTHFLO® oxygen, argon	10	333962

Unicontrol 300 HT.

Pressure gauge for Unicontrol 300 HT.	Qty in SB	Part no.
Content pressure gauge	315 bar	300047
Working pressure gauge	0–45 l/min	300178
O-rings		
Oxygen, argon HT as well as MISON® and MISON® mixtures	10	308384

Fixicontrol HT.

Pressure gauge for Unicontrol 100 HT.	Qty in SB	Part no.
Content pressure gauge	Ar/CO_2	309447
Flow pressure gauge	Ar/CO_2	309448
O-rings		
Carbon dioxide, Argon HT as well as MISON® and MISON® mixtures	10	308384
Pressure gauge protection		**Part no.**
Pressure gauge protection	1	309421

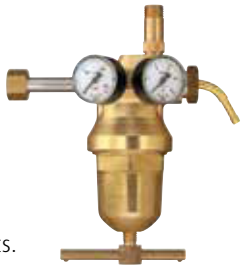
Regulators for High Pressure and Flows.

DIN Control Regulator.

DIN Control regulator is an efficient and affordable regulator for leak and pressure testing with nitrogen. Work area 0–30 bar. Note: A high pressure hose must be used at the outlet.

DIN Control regulator								
	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge (bar)	Inlet	Thread	Outlet	Qty in SB	Part no.
Nitrogen	0–30	0–200	0–60	W 24.32 x 1/14"	Inv.	G ¼"		323992
Gaskets							10	300089

CR 60.



CR 60 is a regulator for large gas outlets.

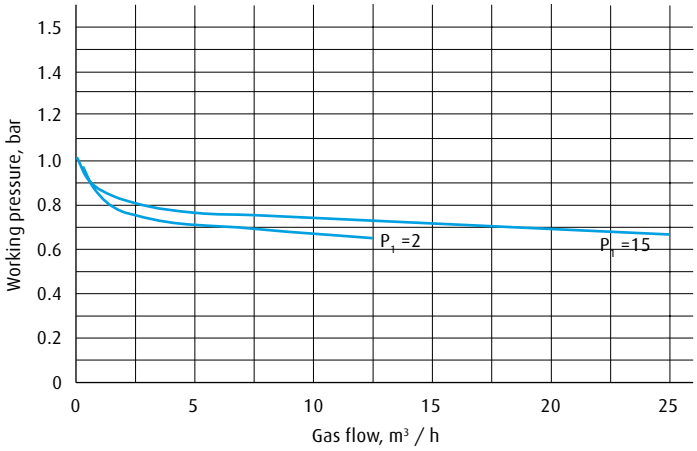
Suitable for cutting more than 300 mm and flushing large pipe systems.
Supplied with a 12 mm hose fitting for acetylene and oxygen, 8 mm fitting for Argon/MISON®, as well as 3 extra gaskets.

CR 60	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge bar	Connection Inlet	Thread	Outlet	Part no.
Acetylene	0–1.5	0–30	0–5	G ¾"	Ext.	R 1"	300027
Oxygen	0–15.0	0–300	0–30	W 21.8 x 1/14"	Int.	R 1"	300032
Argon/MISON®	0–15.0	0–300	0–30	W 24.32 x 1/14"	Int.	R 1"	300022

Gaskets see page 17.

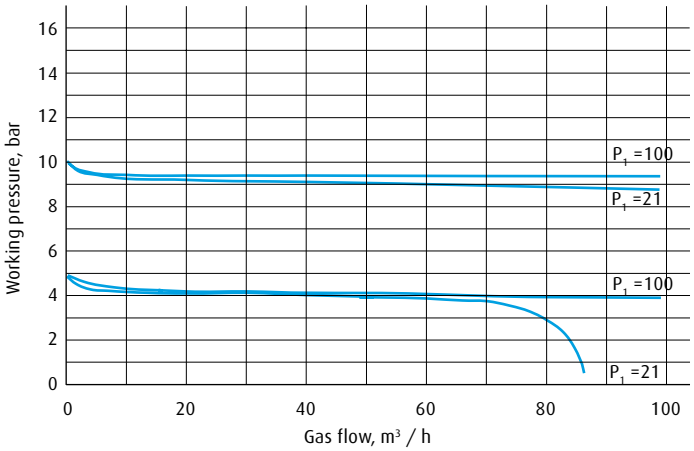
Capacity curves – Acetylene

Inlet pressure – P_1 = bar



Capacity curves – Oxygen

Inlet pressure – P_1 = bar



Note!

A high pressure hose must be used at the outlet.

Unicontrol 600.

Unicontrol 600 is a regulator for high working pressure, e.g. pressure testing.

The working pressure is adjusted with a robust regulator screw. When the cylinder pressure is approx. 5 bar above the working pressure, the capacity is approx. 75 m³/h for hydrogen and helium, and approx. 18 m³/h for the other gases. A ¼" clamping ring connection is supplied, as well as 3 extra gaskets.

Unicontrol 600	Work area (bar)	Content pressure gauge (bar)	Work pressure gauge bar	Connection Inlet	Thread	Outlet	Part no.
Nitrogen	0–103	0–315	0–315	W 24.32 x 1/14"	Int.	W 21.8 RH	323191
Nitrogen	0–200	0–315	0–315	W 24.32 x 1/14"	Int.	W 21.8 RH	300004
Air	0–200	0–315	0–315	G ⅝"	Int.	W 21.8 RH	300005
Oxygen	0–200	0–315	0–315	W 21.8 x 1/14"	Int.	W 21.8 RH	300026

Gaskets see page 17.

Toolboxes.

Gas cutting is the most common thermal cutting process due to its low investment cost and high cut quality.
Gas cutting is a very flexible process and easy to use in many different work situations, as it is possible to cut product thickness ranging from 0.5 to 2500 mm. It is also suitable for manual and mechanised cutting. Gas cutting is used almost exclusively for cutting unalloyed and low-alloy steel.

X11 PRO Series.

X11 PRO is a combined gas welding and gas cutting toolbox for manual work. It is designed according to the stringent demands stipulated by the standard EN ISO 5172.

The requirements regarding airtightness, mechanical strength, flashback safety, flame stability and the easy adjustment of the torch are the foundations for the X11 system. This means that X11PRO is a quality torch that satisfies very strict requirements from users regarding operability and operational reliability.

X11 PRO is one of the world's best-selling torch systems. During the final check prior to delivery, each insert and nozzle is lit and the flame is checked.

Benefits of X11 PRO Series:
- → Potential to weld material with a thickness of 14 mm (normally a maximum of 6 mm)
- → Cuts up to 100 mm with an injector insert (150 mm with pressure cutting attachment)
- → Solders and welds with different heating and welding attachments
- → Heat for straightening and heat forming
- → Oval, grip-friendly torch handle
- → Large range of accessories
- → X11 PRO is available for the fuel gases acetylene and propane (LPG). With propane, the torch's use is limited to cutting, soldering and heating

Welding
The welding attachments are entirely forged in copper and chrome-plated for effective heat dissipation and to deflect weld spatter. For weld locations that are difficult to access, there are a range of flexible welding attachments that are not chrome-plated. All welding attachments have replaceable welding nozzles.

Cutting
X11 PRO has several different cutting attachment alternatives:
- → Lever valve or wheel valve for cutting oxygen
- → Acetylene or propane
- → Injector or pressure torch
- → Nozzle mount 90° or 0°
- → Several different ranges of cutting nozzles

Soldering and heating
In addition to welding attachments, there is a single flame heating attachment and multiple flame heating attachments with shower nozzles.
- → Single flame inserts are used when narrow heating zones are sought
- → Multiple flame inserts are suitable for most wide heating zones and when the entire workpiece is to be heated up

Welding, soldering and heating small parts and thin sheet metal.

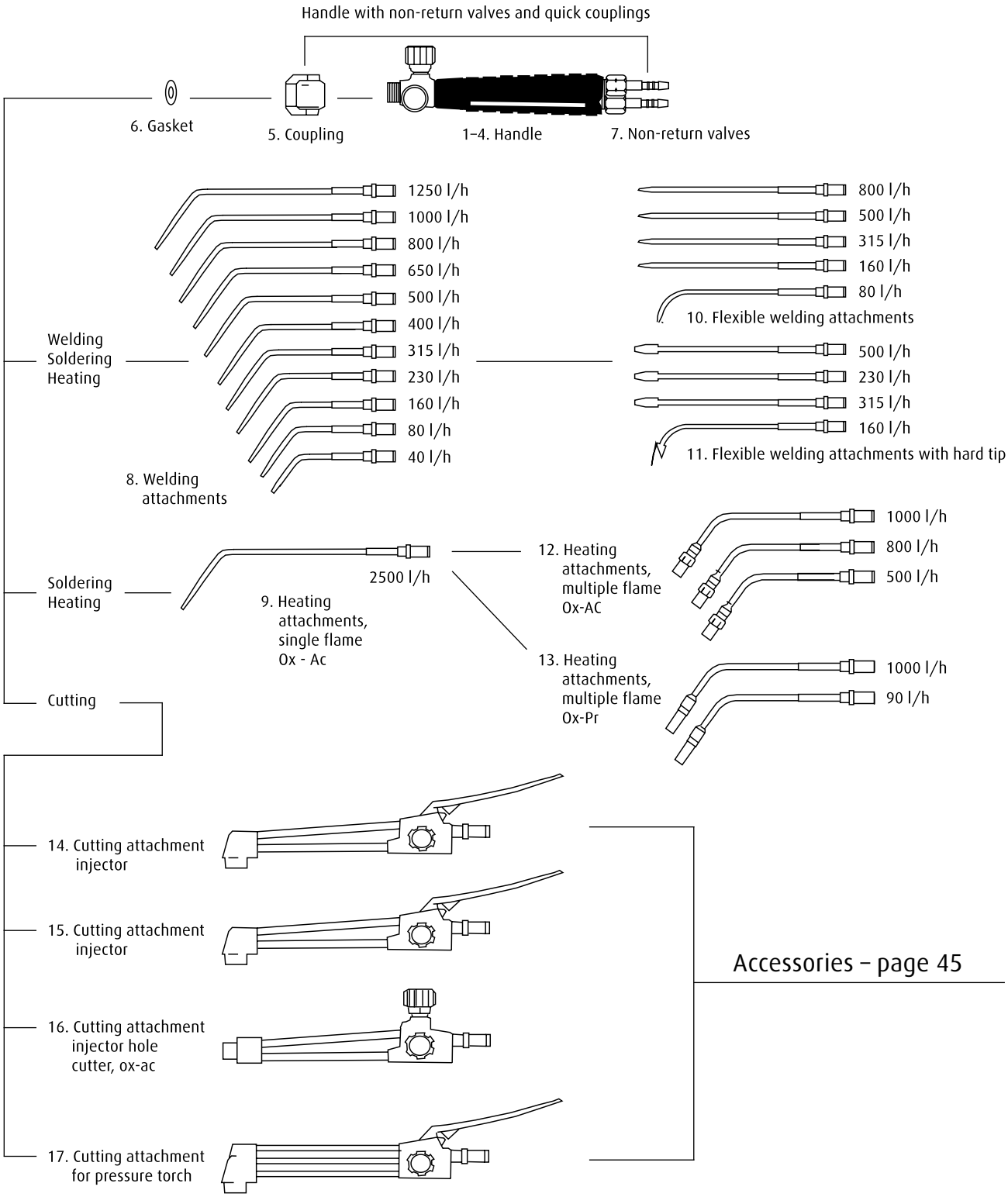
Note!

When propane is used a propane hose must be used. This is important, as acetylene and propane react differently to the material in the hose. More info on page 68.

X11 Overview.




X11 Overview						
Product	X11 PRO	X11 PRO FLEX	X11 PRO PLUS	X11 COMBI	Flame kit – Country specific Excluding gas cylinders	Flame kit – Country specific Including 5 l gas cylinders
Part no.	334329	334434	334431	310133	334168	323078
Shank X11 ergonomic			x	x	x	x
Shank X11 round	x	x				
Cutting attachment 90 deg	x	x	x	x	x	x
Welding attachment 160 litre X11			x	x	x	x
Welding attachment 315 litre X11	x		x	x	x	x
Welding attachment 500 litre X11			x		x	x
Welding attachment 800 litre X11			x	x		
Flexible welding attachment 160 L		x				
Flexible welding attachment 315 L		x				
Flexible welding attachment hard tip 500 L		x				
Heating attachment 1000 L	x	x	x			
HA411-2	x	x	x	x	x	x
HA411-3			x	x	x	x
Non return valves BV12 (SWE, DEN, NOR)	x	x	x	x		
FLAME® arrestor FR20 (FIN, BALTIC)	x	x	x	x		
Cleaning needles	x	x	x	x	x	x
Key		x	x	x		
Cutting table	x	x	x	x	x	x
Clamp coupling to handle	x	x	x	x	x	x
Cap nut	x	x	x	x	x	x
Washer	x	x	x		x	x
Cutting support			x			
Gas lighter	x	x	x	x	x	x
Fixicontrol acetylene				x	x	x
Fixicontrol oxygen				x	x	x
SAFE-GUARD-5 Acetylene				x	x	x
SAFE-GUARD-5 Oxygen				x	x	x
Fireglove				x	x	x
Yellow card				x	x	x
Twin hose 5 metre with bv12 or fr20					x	x
Twin hose 10 metre 5mm				x		
Welding goggles				x		
Box X11		x	x			
Tool belt	x					
X11 COMBI box				X		
FLAME® trolley including boxes					x	x
X11 instruction	x	x	x	x	x	x
Bv 12 instruction	x	x	x	x	x	x



Accessories – page 45

1–6. Handle with Accessories.

	Qty in SB	Part no.
1. Handle ergonomic with non-return valves BV 12 Ø 5.0 mm and clamp coupling	1	300447
2. Handle round with hose fittings Ø 5.0 mm	1	334437
3. Handle ergonomic with non-return valves BV 12 Ø 6.3 mm and clamp coupling	1	305421
4. Handle ergonomic	1	300449
5. Clamp coupling	1	309170
6. Gasket for welding and cutting attachment	10	300423
Hose fitting Ø 5.0 mm	2	300834
Cap nut LH G ¼" Cap nut G ¼"	1+1	300835


300447


334437

7. Non-Return Valve BV 12.

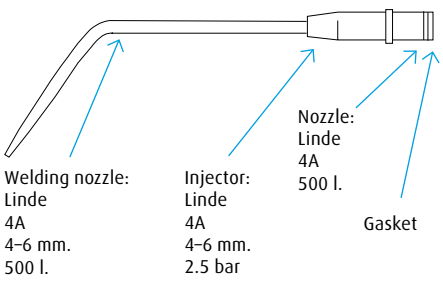
	Qty in SB	Part no.
Ø 5.0 mm ac/pr R ¼" LH Ø 5.0 mm Oxygen R ¼" RH	1+1	300386
Ø 6.3 mm ac/pr R ¼" LH Ø 6.3 mm Oxygen R ¼" RH	1+1	300442

8. Welding Attachments in Accordance with ISO 5172 (DIN 8543).

Size No.	Gas flow Ox – Ac – Ox l/h	Material thickness mm	Part no.
0	40	0.2–0.5	300388
1A	80	0.5–1.0	300390
2A	160	1.0–2.0	300392
E2A	230	1.5–3.0	300402
3A	315	2.0–4.0	300394
E3A	400	3.5–5.0	300368
4A	500	4.0–6.0	300396
E4A	650	5.0–7.0	300391
5A	800	6.0–9.0	300398
E5A	1000	8.0–12.0	300400
6	1250	9.0–14.0	300436

Acetylene pressure: 0.1 to 0.8 bar.
Oxygen pressure: 2.5 bar.

Replaceable welding attachments.		
	Gas flow Ox – Ac – Ox l/h	Part no.
	160	300380
	230	300403
	315	300395
	400	300393



4	=	Size no.
A	=	Acetylene
4–6 mm.	=	Material thickness
500 l.	=	Gas flow, oxygen Litres per hour
2.5 bar	=	Working pressure, oxygen
i	=	Injector torch
E	=	Extra size in addition to standard

The figures refer to the picture on page 29

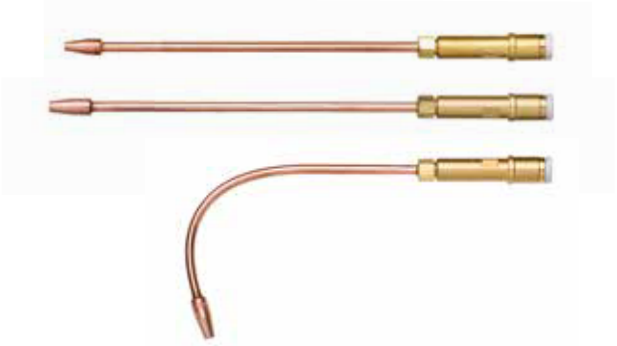
10. Flexible Welding Attachments.

Size	Gas flow Ox – Ac – Ox l/h	Material thickness mm	Part no.
1	80	0.5–1.0	300409
2	160	1.0–2.0	300422
3	160 X 2	1.0–2.0	307360
4	315	2.0–4.0	300424
5	500	4.0–6.0	300435
6	800	6.0–9.0	300434

Acetylene pressure: 0.2–0.6 bar.
Oxygen pressure: 2.5 bar.

11. Flexible Welding Attachments with Hard Tip.

Size	l/h	Material thickness mm	Part no.
1	160	1.0–2.0	329614
2	230	1.5–3.0	335102
3	315	2.0–4.0	329615
4	500	4.0–6.0	329616



Replaceable Welding Attachments.

Replaceable flexible welding attachments in table 9		
	Gas flow Ox – Ac – Ox l/h	Part no.
	315	300425

9, 12. Heating Attachments for Acetylene.

Acetylene pressure: 0.8 bar
Oxygen pressure: 2.5 bar

Multiple flame heating attachment
Acetylene pressure: 0.6–0.8 bar
Oxygen pressure: 2.5 bar

11 – 12. Heating attachments, acetylene.		
Type of heating attachment	Gas flow l/h Oxygen	Part no.
9. Acetylene single flame	2500	309330
12. Acetylene multiple flame	500	300357
12. Acetylene multiple flame	800	300359
12. Acetylene multiple flame	1000	300448
Acetylene, nozzle tip	500	307449
Acetylene, nozzle tip	800	307450
Acetylene, nozzle tip	1000	300431

9. Single flame acetylene

12. Multiple flame acetylene

The figures refer to the picture on page 29.

13. Heating Attachments for Propane.

Multiple flame heating attachment propane
Propane pressure: 0.2–0.8 bar
Oxygen pressure: 2.5 bar

13. Heating attachments, propane		
Type of heating attachment	Gas flow l/h Oxygen	Part no.
13. Propane multiple flame	90	300410
Propane multiple flame	1000	300351

Rule of Thumb for Heating and Straightening.

Material thickness x 2.5 x 100 = Size heating attachment	Heating output kW Ac/ox flame
Eg: 7 mm x 2.5 x 100 = 1750 l/h	20
Eg: 10 mm x 2.5 x 100 = 2500 l/h	29

14–17. Cutting Attachments and Hole-cutting Attachments for Pressure Torch.

300374, Cutting attachment injector, acetylene

300373, Cutting attachment injector, propane

300379, Hole-cutting attachment injector, acetylene

300350, Cutting attachment pressure torch, acetylene or propane

Note!

When using X11 pressure torches and to obtain capacity for cutting 150 mm thick steel, the hose fitting and hose must have a dimension of Ø 6.3 mm.

12 – 15. Cutting attachments and hole-cutting attachments for pressure torch					
Injector	Length cutting attachment mm	Total length with handle mm	Angle of torch head	Qty in SB pack	Part no.
Cutting attachment 90° injector oxygen/acetylene with lever	170	350	90°HV	1	300374
Cutting attachment 90° injector oxygen/propane with lever	170	350	90°HV Pr	1	300373
Cutting attachment 0° hole cutter injector oxygen/acetylene	170	350	0°RV	1	300379
– Nozzle nut for injector torch				1	300432
Pressure torch					
Cutting attachment 90° pressure torch with lever	170	350	90°HV	1	300350
– Nozzle nut for pressure torch				1	300595

HV = Lever for cutting oxygen

The figures refer to the picture on page 29.

Standard Nozzles for X11.

HA 411 – Acetylene.

HA 411 is a flat-sealed 1-piece nozzle with flicker flames.

The nozzle is entirely forged from copper. The gas ducts are cylindrical and produce an even, turbulence-free heating flame and cutting oxygen jet. Note! Nozzle no. 5 for cutting material thickness from 50–100 mm can only be used in X11 equipment manufactured after 1987.

Cutting data HA 411

		Acetylene		Cutting oxygen			Part no.	
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	2 pack	10 pack
HA 411-1	1–3	0.2–0.8	0.1–0.2	1.5	0.2–0.3	1200–600	315439	300323
HA 411-2	3–8	0.2–0.8	0.1–0.2	1.5–2.0	0.5–0.6	600–500	315450	300329
HA 411-3	8–20	0.2–0.8	0.3	3.0–4.0	1.6–2.0	500–320	315451	300332
HA 411-4	20–50	0.2–0.8	0.3	4.0–4.5	3.8–4.2	320–200	315452	300334
HA 411-5	50–100	0.2–0.8	0.3–0.5	3.0–6.5	5.0–9.8	200–150	315453	300336

HP 433 – Propane.

HP 433 is a flat-sealed 2-piece nozzle with slotted flames.

The outer nozzle is made of copper and the inner nozzle of brass. The cutting oxygen duct is cylindrical and produces a turbulence-free cutting oxygen jet.

Cutting data HA 411

		Propane		Cutting oxygen			Part no.
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	2 pack
HP 433-1	1–3	0.3–1.5	0.1	2	0.2–0.3	425	315454
HP 433-2	3–8	0.3–1.5	0.1–0.2	1.5–3.0	1.0–1.4	485–360	315455
HP 433-3	8–20	0.3–1.5	0.3	2.0–4.0	1.7–3.0	380–265	315456
HP 433-4	20–50	0.3–1.5	0.3	2.5–5.0	3.6–6.0	310–215	315457

X21 PRO Series.

The X21 torch system is a complete cutting and welding system with large capacity for several applications such as welding, cutting, heating, soldering, brazing, gouging, flame cleaning and straightening. The X21 can easily be extended to cover each of these specific applications by adding on individual attachments or nozzles suitable for the actual situation.

X21 has been part of the Linde welding equipment portfolio for more than 50 years thanks to its high quality, valued by our customers. The product has developed over the years, but the great performance remains unchanged.

→ Welding capacity up to 14 mm, cutting capacity up to 500 mm

We have now taken yet another step in the development of this toolbox. You should only pay for what you really need. Three toolboxes have been developed based on different types of user needs, which means each toolbox fits its purpose even better.

X21 PRO
This toolbox is designed for you having basic cutting and welding needs. You work in environments like small scrapyards or repair shops where cutting and heating is not in focus in the daily business but you need equipment that is designed for heavy duty work. Equipment in the X21 PRO toolbox is for welding between 2 to 4 mm and cutting between 25 to 50 mm. A 1000 L heating attachment is also included in the box.

X21 PRO PLUS
This toolbox is designed for you working with welding, cutting or heating on regular basis within medium to heavy duty work such as scrapyards, shipyards or other manufacturing industries. Equipment in the X21 PRO PLUS toolbox is for welding between 3,5 to 14 mm and cutting between 3 to 50 mm. Also included in the box is a 1000 L heating attachment and a cutting support.

X21 PROPANE
This toolbox is designed for you who is working with cutting or heating using propane within scrapyards and shipyards. The X21 PROPANE is the first X21 toolbox ever developed for the use of propane as fuel gas.

Equipment in the X21 PROPANE toolbox is for cutting between 10 to 100 mm. A 1000 L heating attachment is also included.
Safety has always been AGA's top priority and we always keep our customers in focus. The X21 reflects that by its strong safety focus as well as superior and consistent quality.

By using Linde cutting and welding products you get safety solutions that meet the highest level of safety. This is one way to avoid serious risks when working.

X21 meets all necessary safety requirements and is manufactured according to EN ISO 5172.

X21 Overview.

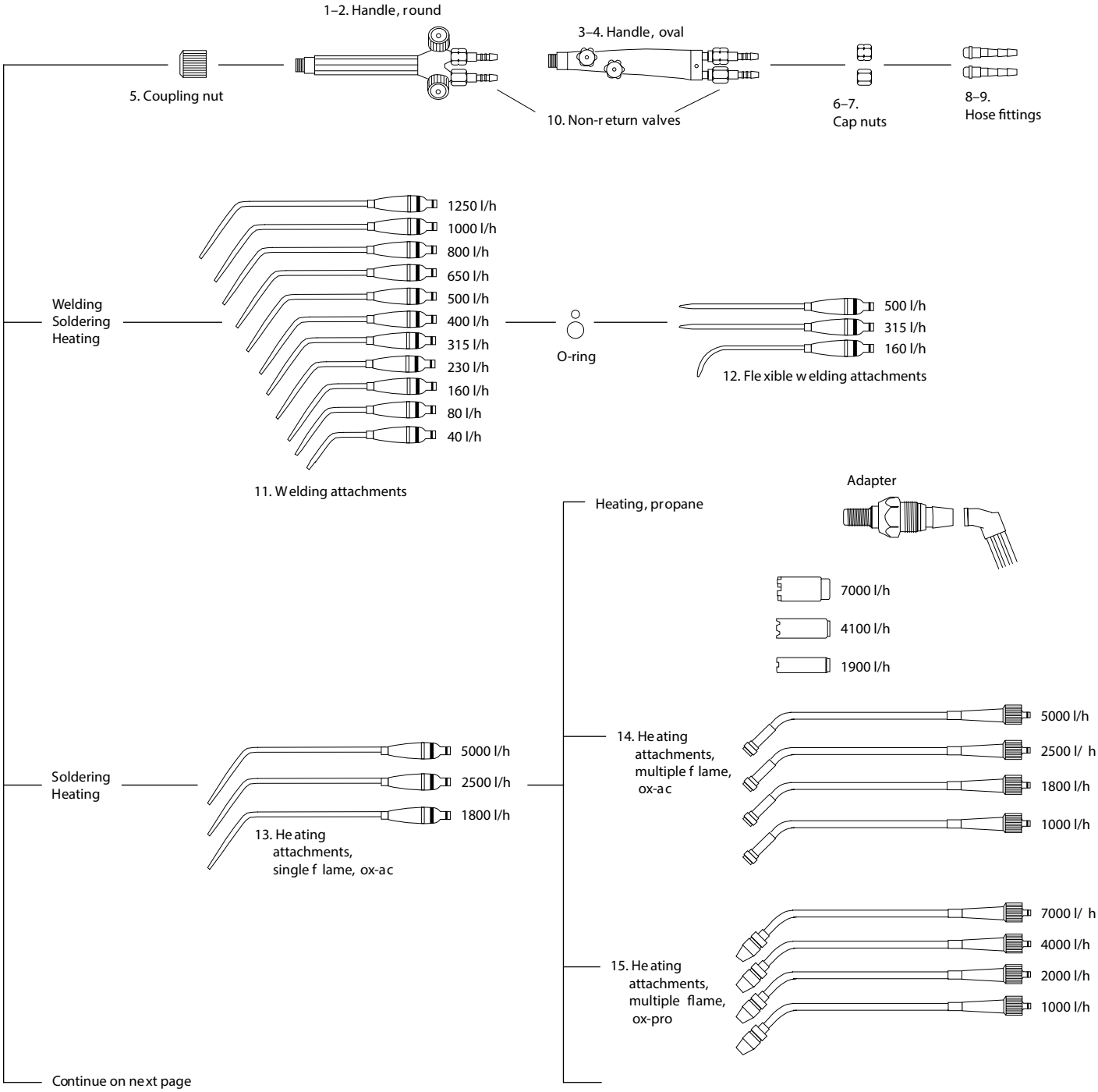


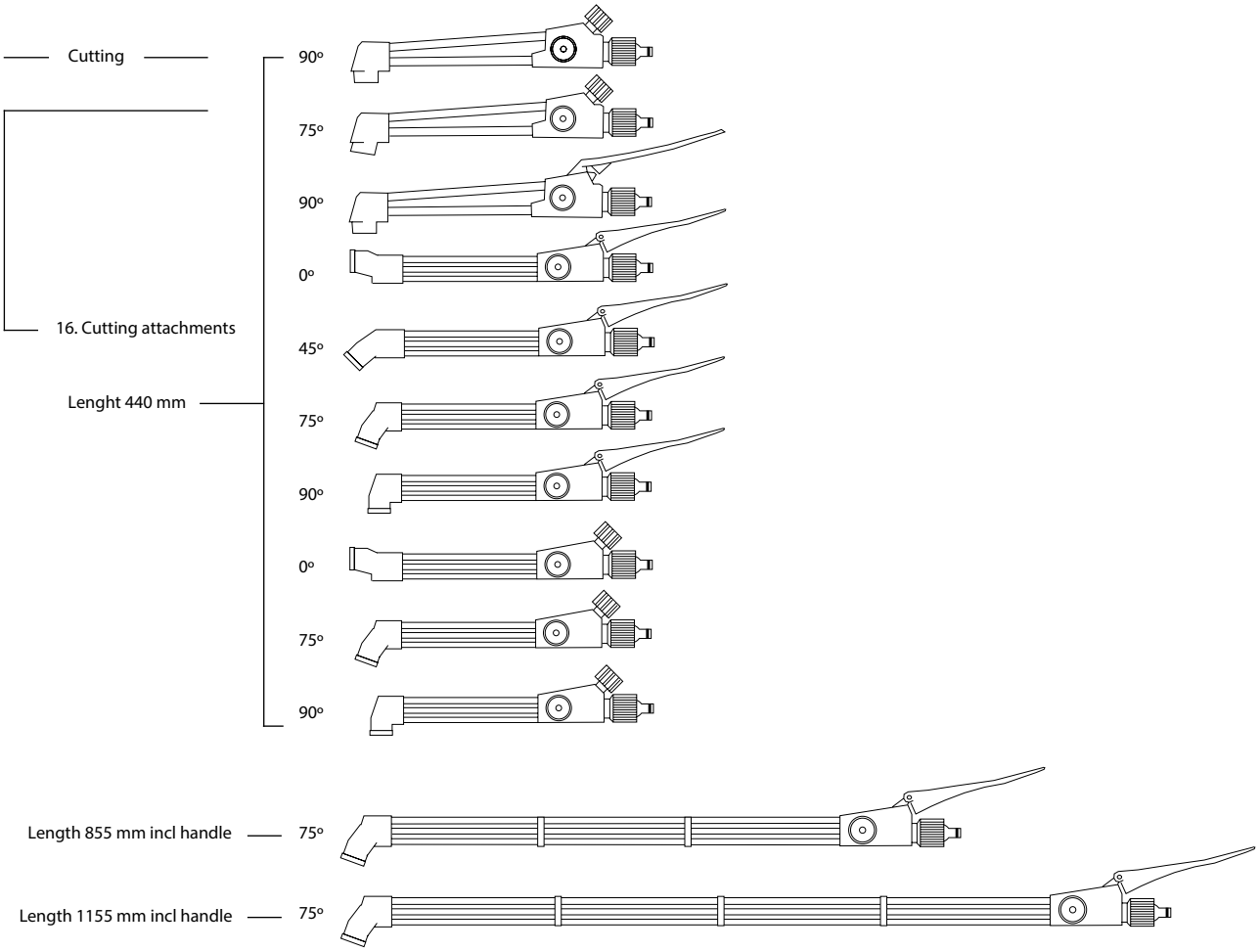

X21 Overview				
Product Part no.	X21 PRO 336009	X21 PRO PLUS 336119	X21 PROPANE 336008	X21 COMBI 316161
Shank X21 Round	x	x	x	x
X21 Welding attachment 80 l/h				x
X21 Welding attachment 315 l/h	x			x
X21 Welding attachment 400 l/h		x		
X21 Welding attachment 500 l/h				x
X21 Welding attachment 1250 l/h		x		
X21 Cutting attachment 90° LEVER	x	x	x	x
Cutting nozzle HA 133-2		x		x
Cutting nozzle HA 133-3		x		x
Cutting nozzle HA 133-4		x		x
Cutting nozzle ANME-4	x			
Cutting nozzle PNME-3			x	
Cutting nozzle PNME-4			x	
Cutting nozzle PNME-5			x	
Heating attachment 1000 L	x	x		
Heating attachment propane 1000 L			x	
Non return valves BV12 (SWE, DEN,NOR)	x	x	x	
Flame arrestor FR20 (FIN, BALTICS)	x	x	x	
Unicontrol 500 HT acetylene				x
Unicontrol 500 HT oxygen				x
Non-return valve BV-12 acetylene				x
Non-return valve BV-12 oxygen				x
SAFE-GUARD-5 acetylene				x
SAFE-GUARD-5 oxygen				x
5 m twin hose Ø 6.3 mm				x
Welding goggles				x
Hose clips 4 pcs				x
Fire glove				x
Cutting support		x		
Fixed key	x	x		
Cleaning needle kit	x	x		x
Big plastic box				x
Welding/cutting table	x	x		x
Instructions	x	x	x	x

Select the correct nozzle according to the choice of fuel gas	
Acetylene	HA-311 or COOLEX® A-311
Propane	COOLEX® P-331

Note!

When propane is used, a propane hose must be used.
This is important, as acetylene and propane react differently to the material in the hose. See page 68.


1–2. Handle, round
3–4. Handle, oval
5. Coupling nut
10. Non-return valves
6–7.
Cap nuts
8–9.
Hose fittings
Welding
Soldering
Heating
1250 l/h
1000 l/h
800 l/h
650 l/h
500 l/h
400 l/h
315 l/h
230 l/h
160 l/h
80 l/h
40 l/h
11. Welding attachments
O-ring
500 l/h
315 l/h
160 l/h
12. Flexible welding attachments
Heating, propane
Adapter
7000 l/h
4100 l/h
1900 l/h
Soldering
Heating
5000 l/h
2500 l/h
1800 l/h
13. Heating
attachments,
single flame, ox-ac
14. Heating
attachments,
multiple flame,
ox-ac
5000 l/h
2500 l/ h
1800 l/h
1000 l/h
15. Heating
attachments,
multiple flame,
ox-pro
7000 l/ h
4000 l/h
2000 l/h
1000 l/h
Continue on next page



Accessories – page 45

1–9. Handle Welding Attachments.

1 – 9. Handle and accessories	Qty in SB pack	Part no.
1. Handle, round with non-return valve BV 12 Ø 6.3	1	300581
2. Handle, round with hose fittings 6.3 mm	1	300527
3. Handle, oval with non-return BV 12 Ø 6.3	1	308543
4. Handle, oval without hose fitting	1	308544
5. Coupling nut	1	300532
6. Cap nut LH G ⅜" 7. Cap nut G ⅜" RH	1+1	300836
8. Hose fitting Ø 6.3 mm	2	300931
9. Hose fitting Ø 8 mm	2	300933

Handle, round

Handle, oval

10. Non-Return Valves BV 12 Incl. Hose Couplings.

10. Non-return valves BV 12 incl. hose couplings	Qty in SB pack	Part no.
Ø 6.3 mm acetylene/propane Ø 6.3 mm oxygen	1+1	300522
Ø 8.0 mm acetylene/propane Ø 8.0 mm oxygen	1+1	300553
Ø 10.0 mm acetylene/propane	1	305656
Ø 10.0 mm oxygen	1	305657

11. Welding Attachments.

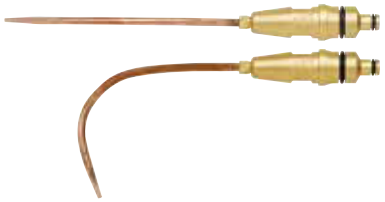
11. Welding attachments			
Size No.	Gas flow Oxygen l/h	Material thickness mm	Part no.
0	40	0.2–0.5	300578
1	80	0.5–1.0	300582
2	160	1.0–2.0	300596
2E	230	2.0–3.0	300605
3	315	2.0–4.0	300604
3E	400	3.5–5.0	300603
4	500	4.0–6.0	300590
4E	650	5.0–7.0	300594
5	800	6.0–9.0	300470
5E	1000	7.0–10.0	300459
6	1250	9.0–14.0	300460

Acetylene pressure: 0.3 bar – Oxygen pressure: 2–6 bar – Proposed outlet pressure

12. Flexible Welding Attachments

12. Flexible welding attachments			
Size No.	Gas flow Oxygen l/h	Material thickness mm	Part no.
1	160	1.0–2.0	300583
2	315	2.0–4.0	300600
3	500	4.0–6.0	300599

Acetylene pressure: 0.3 bar – Oxygen pressure: 3 bar – Proposed outlet pressure



The figures refer to the picture on page 36-37.

Replaceable Attachments in Accordance with Tables 11 and 12.

Welding attachments		
A. Nozzles for the welding attachments in table 11	Gas flow Oxygen l/h	Part no.
	160	300380
	230	300403
	315	300395
	400	300393
	500	300397
B. Nozzles for the flexible welding attachments in table 12		
	160	300420
	315	300425
	500	300426

O-rings.

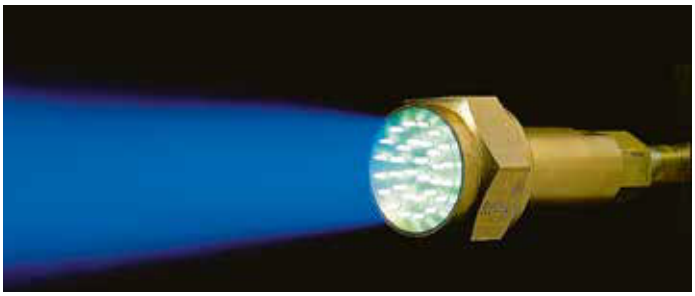
O-rings	
	Part no.
Large O-ring, 10 pack	300498
Small O-ring, 10 pack	300571
O-ring set 2 small and 2 large	300501

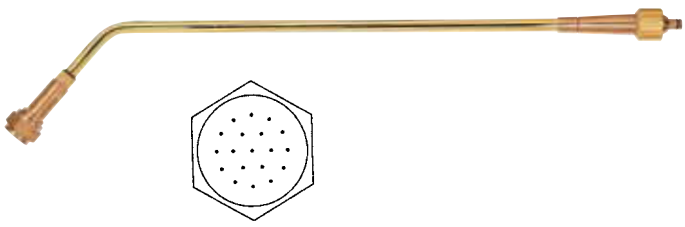
O-Ring small only for cutting attachment, pressure torch 10 pack Part no. 300570

13. Single Flame Heating Attachments – Acetylene.

13. Single flame heating attachments – Acetylene							
Size l/h	Length mm	Working pressure bar		Consumption l/h		Heating power kW	Part no.
		Oxygen	Acetylene	Oxygen	Acetylene		
1 800	340	3	0.3	1 800	1 620	21	300542
2 500	350	6	0.4	2 500	2 250	29	300525
5 000	510	8	0.6	5 000	4 500	58	300547

14. Heating Attachments – Acetylene.

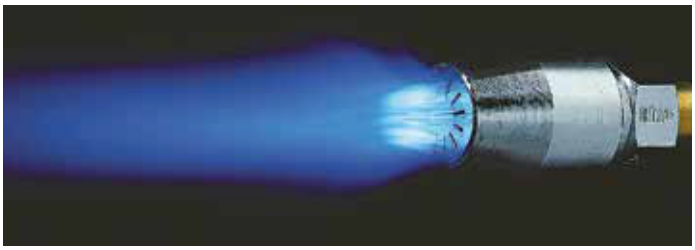




14. Heating attachments acetylene – oxygen							
Size l/h	Length mm	Working pressure bar		Consumption l/h		Heating power kW	Part no.
		Oxygen	Acetylene	Oxygen	Acetylene		
1 000	250	3	0.3	1 000	900	11.6	300545
1 800	400	5	0.3	1 800	1 660	27.0	334436
2 500	670	6	0.4	2 500	2 250	29.0	300543
5 000	680	8	0.6	5 000	4 500	58.1	300541

The figures refer to the picture on page 36-37.

15. Heating Attachments – Propane.



15. Heating attachments propane – oxygen								
Size l/h	Length mm	Working pressure bar		Consumption			Heating power kW	Part no.
		Oxygen	Propane	Oxygen l/h	Propane l/h	Propane g/h		
1 000	370	0.9	0.7	4 250	1 000	1 820	7	300494
2 000	500	2.4	0.8	8 500	2 000	3 640	13	300493
4 000	670	4.9	1.9	15 000	4 000	6 800	26	300491
7 000	770	8.0	2.5	30 000	7 000	12 740	46	300489

Recommendation for straightening		
Material thickness x 2.5 x 100 =		Capacity of heating attachment
E.g. material thickness	7 mm x 2.5 x 100 =	1.750 l/h
	10 mm x 2.5 x 100 =	2.500 l/h
	20 mm x 2.5 x 100 =	5.000 l/h
	25 mm x 2.5 x 100 =	6.250 l/h
	30 mm x 2.5 x 100 =	7.500 l/h

Heating Adapter for X21.

The heating adapter for the X21 is a device for heating with an X21 pressure cutting attachment.

One of the most flexible and essential items in any workshop is gas, along with welding and cutting tools. However, not everyone is aware that welding and cutting are only some of the possibilities offered by such equipment. By adding a few, simple components, the X21 can be used for many different heating processes. The adapter is fitted directly to the torch head on the cutting attachment. The heating nozzle is screwed into the adapter by hand.

Heating adapter for X21

Nozzle	Propane, bar	Oxygen, bar	Propane, l/h	Oxygen, l/h	Heat output, kW	Part no.
1H	0.15–0.5	0.7–2.0	830–1900	3500–7300	21.1–47.8	309335
3H	0.3–1.1	1.8–5.0	2100–4100	8300–16500	53.6–105.8	309334
5H	0.85–2.0	3.5–8.7	3200–7000	12700–28000	82.3–181.1	309333
Adapter						309336

The heat output varies at different pressures.

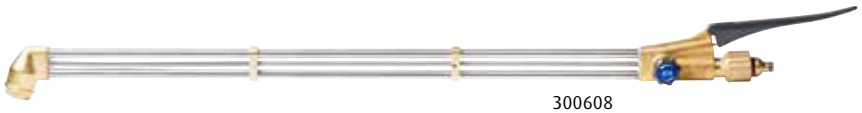
16. Cutting Attachments.

Combined torch system X21 with cutting attachments of various lengths.

- Increased safety due to the fact that the oxygen can be shut off with the wheel valve on the handle. This eliminates the risk of the oxygen supply being opened accidentally
- Easy to supplement the existing X21 torch system with the desired length of cutting attachment
- Special lengths produced to order
- The torch may be used both for acetylene, propane and THERMOLEN®

X21 cutting attachment with lever

300607



300608

Cutting attachments – dimensions and products facts for various items above			
Nominal Length mm		Angle torch head	Part no.
Cutting attachment	Total length incl. handle		
Pressure torch			
240	440	0° HV	300487
240	440	45° HV	300554
240	440	75° HV	300500
240	440	90° HV	300569
240	440	0° RV	308545
240	440	75° RV	308542
240	440	90° RV	307324
655	855	75° HV	300608
955	1155	75° HV	300607
Nozzle nut			300595
Injector torch acetylene:			
220	420	90° HV	308680
220	420	75° RV	308672
220	420	90° RV	308673
Nozzle nut, injector			305597

HV = Lever for cutting oxygen
RV = Wheel valve for cutting oxygen

300569, Cutting attachment, pressure torch with lever

307324, Cutting attachment, pressure torch with wheel valve

308680, X21 Injector cutting attachment with lever (oxygen and acetylene)

308673, X21 Injector cutting attachment with wheel valve (oxygen and acetylene)

Note!

Use a cutting attachment with wheel valve for cutting oxygen when the cutting oxygen valve is to be fully open during use.

HA 311 – Acetylene.

HA 311 is a 3-cone sealed cutting nozzle, exactly the same as COOLEX® A 311 but without a cooling flow. The nozzle has a cylindrical cutting duct and six heating flames, except for the largest nozzle, 300–500 mm, which has nine heating flames.

It is forged from a piece of copper over polished steel mandrels, which produces an even, turbulence-free flame. The smallest nozzle is known as a thin sheet metal nozzle, 1–3 mm, and is characterised by minimal heat spread and consequently little deformation of the workpiece. HA 311 has a large cutting range – a series of eight cutting nozzles for material thickness ranging from 1–500 mm.

HA 311-1 Thin sheet metal

HA 311-3

Cutting data HA 311

		Acetylene		Cutting oxygen			Part no.	
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	1 pcs	10 pack
HA 311-1	1–3	0.2	0.1	0.5–2.5	1.3	Max. 1.000	305847	300631
HA 311-2	3–10	0.2	0.3	1.0–2.5	1.6	950–430	305853	300623
HA 311-3	10–25	0.2	0.4	1.5–4.0	3.6	580–350	305849	300624
HA 311-4	25–50	0.2	0.5	1.5–4.0	6.8	500–300	305852	300632
HA 311-5	50–100	0.2	0.7	3.0–6.0	7.8–14.1	380–180	305834	300612
HA 311-6	100–200	0.2	0.9	5.0–8.0	15.8–23.9	280–120	305843	300614
HA 311-7	200–300	0.3	1.2	5.0–8.0	23.6–36.7	150–100	305841	300621
HA 311-8	300–500	0.3	3.0	7.0–12.0	43.1–68.3	100–50	305832	300615

COOLEX® P 331 – Propane.

COOLEX® P 331 is a 3-cone sealed cutting nozzle with slotted flames.

The nozzle is in two parts, and the inner nozzle has a cylindrical cutting duct. The inner nozzle is shorter than the outer nozzle, and the recessed location helps to effectively guide the propane flame, which is even and turbulence-free.

Product benefits:

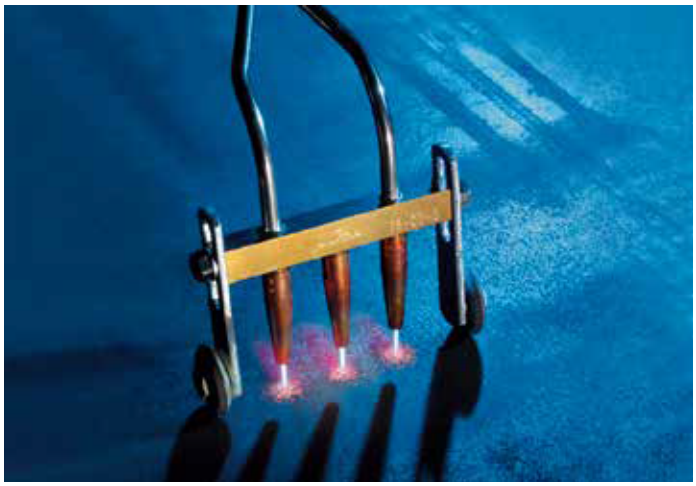
- → Large cutting range – a series of eight cutting nozzles for material thicknesses from 1–500 mm
- → Long service life thanks to the cooling flow to the cutting oxygen duct

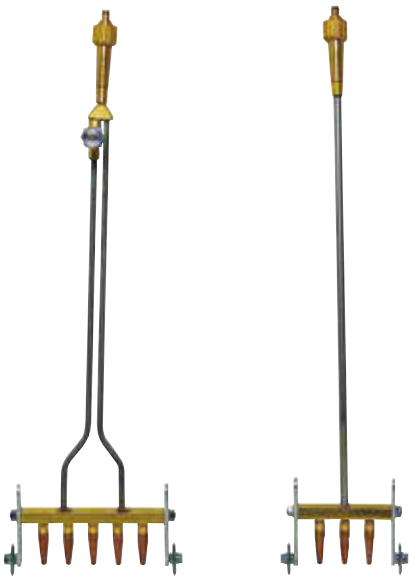
For more nozzles se page 50.

Cutting data P 331

		Propane		Cutting oxygen			Part no.
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	1 pcs
P 331-1	1–3	0.3–1.5	0.1	0.6–1.9	1.6	Max. 900	300675
P 331-2	3–10	0.3–1.5	0.2	0.4–0.9	2.7	850–390	300676
P 331-3	10–25	0.3–1.5	0.5	0.6–2.1	4.5	540–325	300668
P 331-4	25–50	0.3–1.5	0.5	0.8–2.4	7.8	475–285	300674
P 331-5	50–100	0.3–1.5	0.5	1.9–5.0	9.0–15.2	380–180	300671
P 331-6	100–200	0.3–1.5	0.5	3.1–5.6	14.7–24.3	280–120	300670
P 331-7	200–300	0.3–1.5	0.6	4.4–7.5	25.8–45.2	150–100	300669
P 331-8	300–500	0.3–1.5	1.2	5.5–10.5	41.3–75.0	100–50	300672

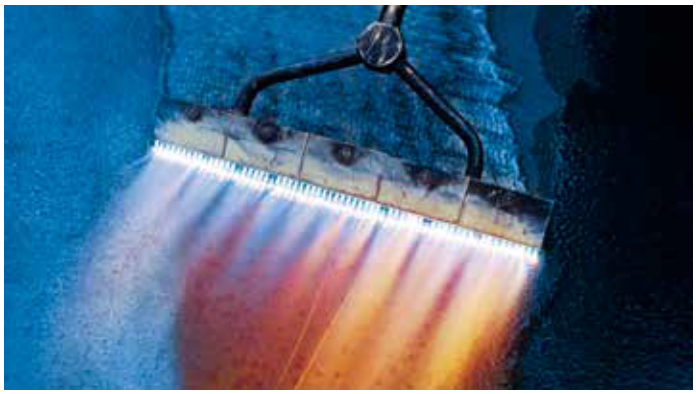
Flame-Straightening Torch.





Flame-straightening torch.							
	Nozzles	Length mm	Working pressure bar		Consumption l/h		Part no.
			Oxygen	Acetylene	Oxygen	Acetylene	
Flame-straightening torch	3	730	7	0.7	1 500	1 350	300534
	5	690	7	0.7	2 500	2 250	300490
Nozzles for flame-straightening torch X21, 500 l							300495
Wheel, incl. hub							300506
Wheel holder							307990

Flame-Cleaning Torch.



Flame-cleaning torch								
	B	L	Working pressure bar		Consumption l/h		Cylinder	Part no.
	mm	mm	Oxygen	Acetylene	Oxygen	Acetylene	requirement	
Flame-cleaning torch	50	490	7	0.7	1 250	1 150	2	300538
	150	490	7	0.7	2 500	2 300	6	300537
	250	1190	8	0.8	4 400	4 050	10	300536

Due to the large gas consumption, outlets are required from 2 cylinders of acetylene for every 50 mm width of the flame-cleaning equipment.

Note!

Consult your material supplier regarding suitable pre-heating temperature. In order to succeed with flame straightening, heating has to take place quickly. This means that acetylene (which has the highest effective heating value of all fuel gases) and an efficient torch have to be used. The Flamtech torch meet these requirements.

Flame Straightening.

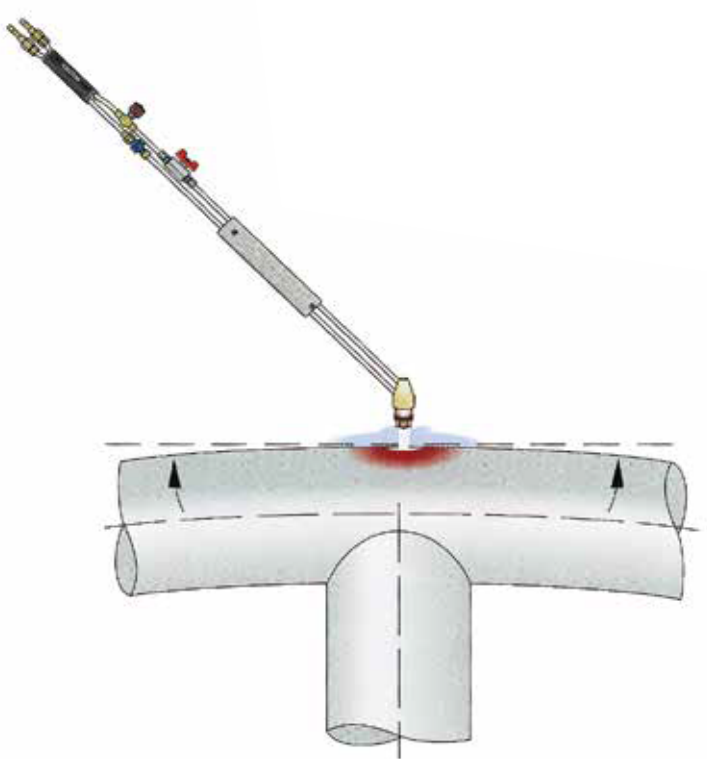
Welding and cutting causes stresses in the material that can result in unwanted deformations. If these deformations are serious, the part must be rectified. Flame straightening is usually a suitable method, and in some cases it is the only option for reducing the deformations to an acceptable level.

Flame straightening
The process takes place by means of rapid local heating, which entails a permanent local deformation of the material through the prevention of thermal expansion. During cooling, the material then shrinks. Steel must be heated to approx. 600–700°C, which causes the steel to change to a dark red colour.

Heat forming
Heating in order to bend bar profiles etc. generally requires the same rapid, brief heating as flame straightening.

Pre-heating (raised working temperature)
A welding object to be pre-heated is dependent on the type of parent material, the material thickness and which welding process is to be used. If pre-heated is required, the Flamtech torch is well-equipped for the task.

Flamtech torch



FA 6

MA 3

FY 6 for THERMOLEN®

		Part no.
FLAMTECH torch.		300469
Nozzles		
	MA 3	300611
	FA 6	300616
	FY 6 for THERMOLEN®, natural gas and propane	309871

Note!

The acetylene gas supply to Flamtech must come from a cylinder bundle. In addition, double flashback arrestors, SAFE-GUARD-5, must be fitted with double outlets, as more than 5 m^3/h of acetylene is required.

Flame straightening				
Nozzle MA3, flame straightening				
	Working pressure:	Oxygen 2 bar	8.500 l/h	Acetylene 1 bar
	Lowest working pressure:	Oxygen 1.1 bar	5.400 l/h	Acetylene 0.9 bar
	Heat output: 98 kW			
Nozzle FA 6, pre-heating (raised working temperature)				
	Working pressure:	Oxygen 1.5 bar	10.000 l/h	Acetylene 0.7 bar
	Lowest working pressure:	Oxygen 0.8 bar	6.400 l/h	Acetylene 0.6 bar
	Heat output: 116 kW			

Rule of thumb for acetylene output from various cylinder sizes		
Cylinder size	Content, filled cylinder	Maximum capacity
A 40	7.8 kg equiv. to approx. 7.170 l	900 l/h
Bundle		
A 40 x 10	62 kg equiv. to 57.000	10.000 l/h

Rule of thumb for straightening and heating		
Material thickness x 2.5 x 100	=	Capacity of heating attachment
E.g. material thickness: 20 mm x 2.5 x 100	=	4000 l/h
E.g. material thickness: 30 mm x 2.5 x 100	=	7500 l/h
E.g. material thickness: 40 mm x 2.5 x 100	=	10.000 l/h

Accessories for Torch Systems.

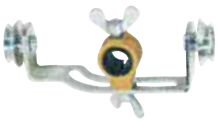
A. Circle-cutting support

B. Cutting support, graduated

C. Support for hole-cutting attachment

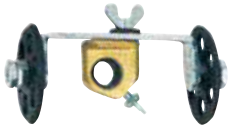
Cutting Support for X11.

	Part no.
A. Circle-cutting support for hole diametres Ø 60–600 mm	300419
B. Cutting support, graduated	300414
C. Support for hole-cutting attachment, hole diametres Ø 20–60 mm	300406



D. Double cutting support, adjustable with small wheels

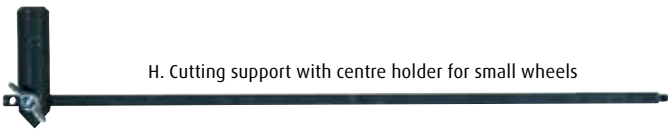
E. Double cutting support large wheels



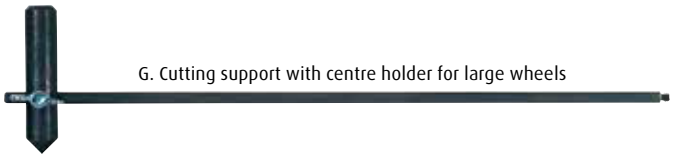
F. Double cutting support, adjustable with large wheels

I. Spacer sleeve

J. Hole-cutting device



H. Cutting support with centre holder for small wheels



G. Cutting support with centre holder for large wheels

Cutting Support for X21 and X11 300350.

	Part no.
D. Double cutting support, adjustable with small wheels	300576
E. Double cutting support with large wheels	300584
F. Double cutting support, adjustable with large wheels	300510
G. Cutting support with centre holder for large wheels	300575
H. Cutting support with centre holder for small wheels	300564
I. Spacer sleeve	300572
J. Hole-cutting device	300568

Extra Circle-Cutting Device for X21.

High quality ball bearing circle-cutting device, for narrow tolerance and high cut quality when cutting circles and holes with manual gas cutting.

The circle-cutting device is used together with X21 and similar torches, as well as all COOLEX cutting nozzles and cutting nozzle HA311.

L. Circle-cutting device without extension bar

K. Circle-cutting device complete

	Diametre mm	Part no.
K. Circle-cutting device complete	30–800	300606
L. Circle-cutting device without extension bar	30–100	300531
M. Circle-cutting device X21 Injector complete (X 311)	60–800	310358

Cutting Equipment.

Manual Cutting Torch X511.

X511 is a pressure torch (II) intended for manual gas cutting.

The capacity is sufficient for material thicknesses up to 500 mm. X511 is designed to meet requirements set out in EN ISO 5172.
Acetylene, propane, thermolen or natural gas can be used as the fuel gas, and it has a lockable lever valve for the cutting oxygen. X511 has wheel valves installed on the side and a flat handle. All COOLEX®, HA 311.

→ Non-return valves are not included.

X511		
Length mm	Nozzle mount	Part no.
470	90°	300696
470	75°	300691
855	75°	300690
1.080	75°	300679
	Nozzle nut	300595

Manual Cutting Torch X 31.

X 31 is a pressure torch and is intended for manual gas cutting. The cutting capacity is sufficient for material thicknesses up to 500 mm.
The handle is round, and there are oxygen and fuel gas valves at the rear of the torch handle. The lever valve for the cutting oxygen is lockable. The gas pipes are made of stainless steel. Acetylene, propane, thermolen or natural gas can be used as the fuel gas. The torch meets the requirements set out in EN ISO 5172. Non-return valves are not included.

X 31		
Length mm	Nozzle mount	Part no.
470	90°	305578
470	75°	305558
	Nozzle nut	300595

Manual Cutting Torch SIDER 7.

The SIDER 7 injector torch is a robust cutting torch for propane and oxygen. It is durable and reliable. It meets the requirements set out in EN ISO 5172. The stainless steel pipes are placed in a triangular layout for optimum stability. The mixing chamber is placed in the cutting head and the cutting oxygen valve is designed for soft-starting the cutting process. SIDER 7 has a cutting capacity of up to 300 mm.
Supplied with non-return valves.

	Length mm	Weight g	Connections	Part no.
SIDER 7	920	1.400	⅜" RH–⅜" LH	315502
SIDER 7 Long	1.500	1.600	⅜" RH–⅜" LH	330468
Nozzle nut				323412

NFF Cutting Nozzle for SIDER 7 Scrap Cutting Torch.

Cutting data NFF						
Serial no.	Cutting range mm	Propane		Oxygen		Part no.
		bar	m³/h	bar	m³/h	
NFF-1	6–25	0.5	0.4	2.5–3.5	3.5–4.5	315501
NFF-2	25–50	0.5	0.4	3.0–4.0	4.0–4.8	315497
NFF-3	50–75	0.5	0.4	3.0–4.5	5.0–6.5	315496
NFF-4	75–150	0.5	0.5	3.5–5.5	6.5–9.5	315499
NFF-5	150–200	0.5	0.6	4.5–5.5	10.0–14.0	315500
NFF-6	200–300	0.5	0.7	5.0–6.5	15.0–19.0	315498

Lance.

The lance works quickly and quietly in aluminium, stainless steel, cast iron, copper and concrete.

The lance (torch lance) is a tool for making holes and cutting hard materials (reinforced concrete, natural stone, bricks, acid-resistant steel, cast iron). The lance works without noise or vibrations.
Areas of application: all cutting of scrap, sheet pile walls, underwater cutting and similar cutting of materials where normal thermal cutting cannot be used.

Work execution
The lance is lit against a wood block with a small volume of oxygen, and applied at an angle against the surface to be processed.
When the lance has begun to burn, the oxygen pressure is increased.
The lance burns at a temperature of approx. 3.000°C, at which concrete and similar materials sinter ("melt"). Hole diametre approx. 40 mm.

An area of approx. 30 mm around the torch hole is affected by the heat generation. The lance can be bent, making it possible to make holes behind obstacles such as pipelines, etc.

316653, Lance holder Model C, incl. non-return valve

Lance							
Lance Ø mm	Cutting direction	Hole diametre mm	Oxygen bar	Consumption during hole making			Cutting speed mm/min
				Oxygen m³	Lance m	Time min.	
16 (⅜")	Horizontal	40	6.0	2.3	5.4	5.4	190
16 (⅜")	Overhead	40	6.0	2.5	6.0	6.0	165

	Part no.
Lance holder Model C, incl. non-return valve	316653
Lance Ø 16 x 3000	300736
Hose fitting 8 mm	316810
Nut	316811
Lance Ø 13 x 2000	335867

316811, Nut 316810, Hose fitting 8 mm

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Premium Cutting Nozzles.

Function and Maintenance.

A cutting nozzle has two main functions:
- To guide the heating flame
- To guide the cutting oxygen jet

The heating flame's task is to:
- Heat a point on the workpiece to its ignition temperature
- Retain the ignition temperature at the surface during the cutting process
- Clean the surface of impurities in order to facilitate the cutting oxygen jet's contact
- Protect and support the cutting oxygen jet

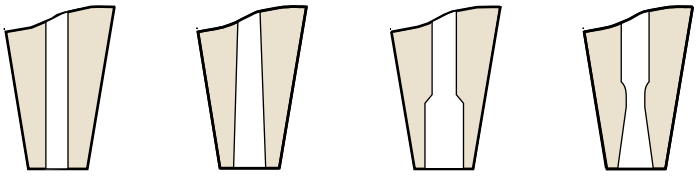
The cutting oxygen jet's task is to:
- Strike the cut surface with high levels of gas purity and precision
- Burn iron to produce iron oxide
- Blow the iron oxide and other slag products out of the cut

Important! Maintenance and choice of cutting nozzles
In order to achieve the best cutting results, it is extremely important for the cutting nozzle to be cleaned and maintained regularly.

The choice of cutting nozzle is primarily dependent on:
- Type of fuel gas, normally acetylene or propane
- Type of cutting torch, normally for flat-sealed or 3-cone sealed nozzles
- Type of cutting; scrap cutting or quality cut with the highest possible cutting speed

After that, select nozzle size according to the material thickness to be cut. There are various cutting nozzles for special tasks such as gouging and rivet cutting.

Design of cutting ducts



Cylindrical | Conical expanding | Cylindrical with recess | Laval principle (gives super-sonic flow) High Speed

Injector torch	Acetylene	Page	Propane	Page
Small injector torches (i)				
X11	HA 411	33	HP 433	33
Other injector torches (i)				
X21 injector torch	*MA 133 D	55		
	HA 121	55		
Gouging				
X21 injector torch	JETGROOVER®	57		

Pressure torch	Acetylene	Page	Propane	Page
Pressure torches (II) Manual cutting torches:				
X21	Coolex A311/HA311	53/42	COOLEX® P 331	42
Scrap cutting				
	COOLEX® A 317	53	COOLEX® P 337	54
Rivet cutting				
	COOLEX® A 341 BL	58		
Gouging				
	COOLEX® A 361	58		
	COOLEX® A 351 B	58		
	COOLEX® A 353 BL	59		

* Recommended for mechanised cutting

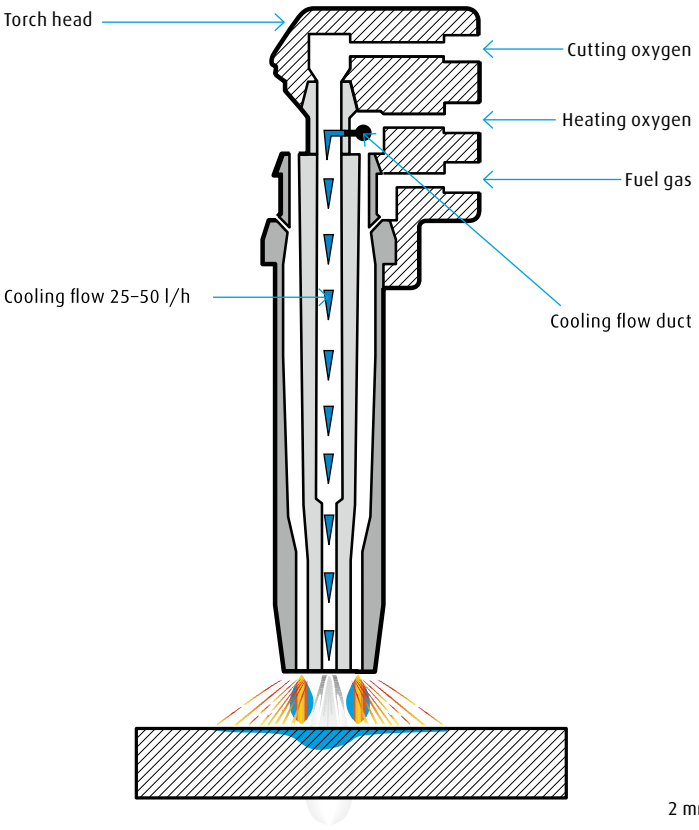
COOLEX® – 3-Cone Sealed Cutting Nozzles for Pressure Torches.

COOLEX® is the generic name for AGA's 3-cone sealed cutting nozzles, which are a development of conventional cutting nozzles. The COOLEX® nozzles have a cooling flow duct that is an AGA patent.

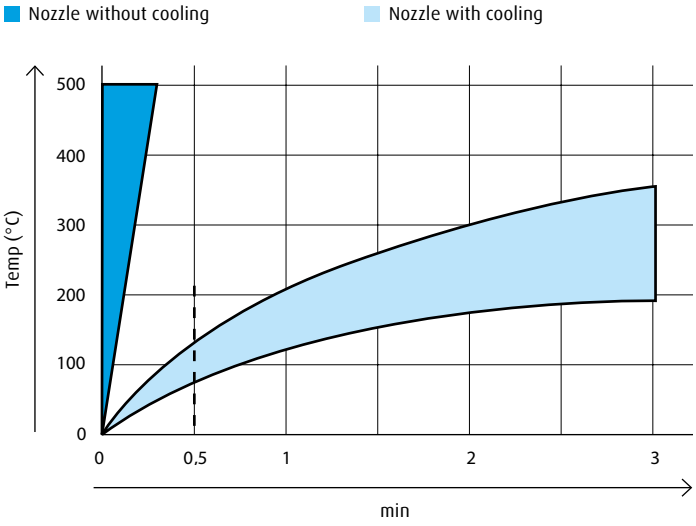
In a conventional cutting nozzle, hot gas penetrates from the heating flame into the cutting duct, causing inappropriate heating of the cutting nozzle, often up to 500°C.

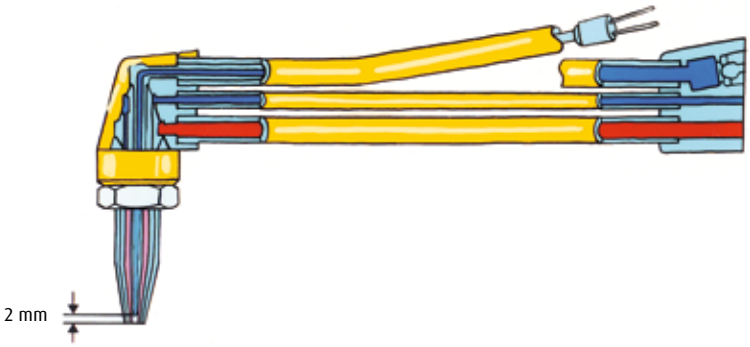
This means that cutting spatter and combustion residue adhere more easily to the nozzle and its outlet ducts, which in turn impairs the cutting process in the form of poorer cut quality and more stoppages and interruptions to production. The COOLEX® nozzles with a cooling flow duct improve the cut quality and increase accessibility through fewer operational interruptions. This is thanks to the small cooling flow (approx. 25–50 l/h) that is routed from the heating oxygen duct to the cutting oxygen duct.

Torch head



Temperature measurement in the cutting nozzles





Premium Nozzles for X21.

COOLEX® A 311 – Acetylene.

COOLEX® A 311 is a 3-cone sealed cutting nozzle.

Product benefits:
- Large cutting range – a series of eight cutting nozzles for material thicknesses from 1–500 mm
- Long-lasting thanks to the cooling flow
- It is forged from a single piece of copper, which produces an even, turbulence-free flame
- The smallest nozzle is known as a thin sheet metal nozzle, 1–3 mm, and is characterised by minimal heat spread and consequently little deformation of the workpiece
- Use cleaning method: cleaning needle

A 311-1 Thin sheet metal

A 311-3

Coolex A 311

		Acetylene		Cutting oxygen			
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	Part no. 1 pack
A 311-1	1–3	0.2	0.1	0.5–2.5	1.3	Max. 1.000	300640
A 311-2	3–10	0.2	0.3	1.0–2.5	1.6	950–430	300639
A 311-3	10–25	0.2	0.4	1.5–4.0	3.6	580–350	300643
A 311-4	25–50	0.2	0.5	1.5–4.0	6.8	500–300	300644
A 311-5	50–100	0.2	0.7	3.0–6.0	7.8–14.1	380–180	300645
A 311-6	100–200	0.2	0.9	5.0–8.0	15.8–23.9	280–120	300642
A 311-7	200–300	0.3–0.8	1.2	5.0–8.0	23.6–36.7	150–100	300641
A 311-8	300–500	0.3–0.8	3.0	7.0–12.0	43.1–68.3	100–50	300638

COOLEX® A 317 – Acetylene.

Scrap cutting nozzles.

Product benefits:
- Specially adapted for scrap cutting
- Rapid cutting start thanks to effective heating flames
- Increased productivity thanks to the fact that each nozzle has a large cutting range, which means fewer stoppages for nozzle replacement
- Long-lasting thanks to the cooling flow
- COOLEX® A 317 is a 3-cone sealed flicker flame nozzle that is forged from a single piece of copper
- Use cleaning method: cleaning needle

COOLEX® A 317

		Acetylene		Heating oxygen	Cutting oxygen			
Serial no.	mm	bar	m³/h	m³/h	bar	m³/h	mm/min	Part no. 1 pack
A 317-1	3–50	0.3–0.8	0.7–1.0	0.8–1.2	1.0–3.1	2.4–5.2	480–370	300662
A 317-2	50–100	0.3–0.8	1.1	1.2	1.8–4.9	5.3–11.3	370–240	300673
A 317-3	100–200	0.5–0.8	1.1–1.3	1.2–1.5	4.2–7.4	13.3–21.5	280–150	300661
A 317-4	200–300	0.5–0.8	1.3	1.5	4.3–7.3	22.4–34.2	150–100	300660
A 317-5	300–500	0.8	2.8–3.0	3.2–3.3	5.9–8.5	36.5–50.0	100–50	300659

COOLEX® P 337 – Propane.

Scrap cutting nozzles.

COOLEX® P 337 is a 3-cone sealed, two-part slotted flame nozzle with cylindrical cutting duct.

Product benefits:
- → Specially adapted for scrap cutting
- → Rapid cutting start thanks to effective heating flames
- → Increased productivity thanks to the fact that each nozzle has a large cutting range, which means fewer stoppages for nozzle replacement
- → Long-lasting thanks to the cooling flow

COOLEX® P 337

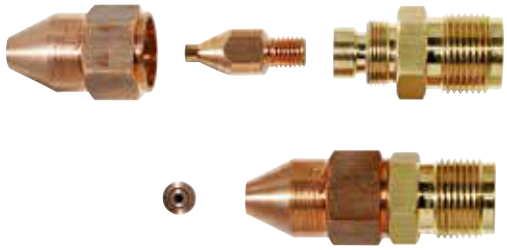
		Propane		Heating oxygen	Cutting oxygen			
Serial no.	mm	bar	m³/h	m³/h	bar	m³/h	mm/min	Part no. 1 pack
P 337-1	3–50	1.0	0.9	3.5	4.0	6.0	1000–325	300647
P 337-2	50–100	1.0	1.3	5.0	5.0	10.0	380–180	300657
P 337-3	100–200	1.0	1.6	6.4	7.0	25.0	280–120	300655
P 337-4	200–300	1.0	2.3	9.2	8.0	40.0	150–100	300656
P 337-5	300–500	1.0	3.0	12.0	12.0	72.0	100–50	300654

Cutting Nozzles X21 Injector.

HA 121 – Acetylene.

HA 121 is a flat-sealed ring flame nozzle with a cylindrical cutting duct and ring-shaped heating flame.

The nozzle comprises three parts: fitting, inner nozzle and outer nozzle.
HA 121 is intended for cutting material thicknesses up to 150 mm.



HA 121

		Acetylene		Cutting oxygen			Part no.	
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	1 pack	10 pack
HA 121-0	5–10	0.1–0.8	0.3	4.0–5.0	1.1–1.8	625–500	309287	
HA 121-1	5–20	0.1–0.8	0.3	5.0–6.0	1.1–2.4	625–350	309302	309286
HA 121-2	20–30	0.1–0.8	0.4	6.0–7.0	2.4–4.5	350–300	309301	309285
HA 121-3	30–75	0.1–0.8	0.5	6.5–7.5	4.5–9.5	300–215	309300	309284
HA 121-4	75–150	0.1–0.8	0.6	7.0–7.5	9.5–13.9	215–90	309289	

MA 133D – Acetylene.

MA 133D is a flat-sealed, 2-part slotted flame nozzle. It can be used for all gas cutting up to material thicknesses of 300 mm.

→ The outer nozzle is made of chrome-plated copper, which means that it is more difficult for spatter and slag to adhere to the nozzle. The inner nozzle is made of copper. The heating flame's properties, together with the expanding cutting ducts, produce a very concentrated and stable cutting oxygen jet, which provides the potential for a high cutting speed and cut quality

Product benefits and areas of application:
→ With a knowledge of the gas cutting process and the correct gas supply, a high cutting speed (e.g. 700 mm per minute in a material thickness of 10 mm) can be used in production
→ High cut quality

MA 133D

		Acetylene		Heating oxygen		Cutting oxygen			Part no.	
Serial no.	mm	bar	m³/h	bar	m³/h	bar	m³/h	mm/min	1 pack	10 pack
MA 133D-0	3–8	0.2–0.8	0.5	1.5	0.6	3.5–5.0	1.3–1.9	900–650	305762	305817
MA 133D-1	8–15	0.2–0.8	0.5	1.5	0.6	5.0–6.0	2.3–2.6	725–600	305760	305818
MA 133D-2	15–30	0.2–0.8	0.5	1.5	0.6	6.0–7.0	3.6–4.2	680–460	305770	305727
MA 133D-3	30–50	0.2–0.8	0.5	1.5	0.6	6.5–7.5	5.2–5.9	575–360	305746	305729
MA 133D-4	50–70	0.2–0.8	0.7	2.3	0.7	7.0–7.5	7.5–8.0	475–340	305768	305730
MA 133D-5	70–100	0.2–0.8	0.7	2.3	0.7	7.0–8.0	11.1–12.3	365–280	305767	305735
MA 133D-6	100–200	0.5–0.8	0.7–0.8	2.0–5.0	0.8–0.9	6.0–8.0	11.7–15.7	250–150	305731	305732
MA 133D-7	200–300	0.5–0.8	1.0–1.3	2.0–5.0	1.1–1.5	6.0–7.0	26.8–31.0	180–110	305728	309346

Gouging.

Gouging X21 Injector.

JETGROOVER® – Acetylene.

JETGROOVER® is a 2-part slotted flame nozzle. It is made of copper with a chrome-plated outer nozzle to reduce adhesion of cutting spatter and slag.

The cutting oxygen duct is designed to produce a turbulent cutting oxygen duct with a larger diametre and lower outflow speed compared to a conventional cutting nozzle.

Product benefits:
- → High processing capacity
- → Powerful heating flame for rapid start
- → Short nozzle for good accessibility

Areas of application:
- → Gouging grooves for post-welded root or other joint preparation
- → Gouging away fillet welds
- → Good method for removing defects in welded joints, as it is easier to see pores, cracks, etc. compared to arc air gouging and grinding

Cutting data JETGROOVER®

			Acetylene		Heating oxygen	Cutting oxygen			
Serial no.	mm	mm	bar	m³/h	m³/h	bar	m³/h	mm/min	Part no. 1 pack
No. 0	5–6	2–4	0.3–0.8	1.3–1.7	1.4–1.9	5.0–7.0	3.6–4.9	400–1 400	309332
No. 1	5–8	4–6	0.3–0.8	1.6–2.2	1.8–2.4	6.5–9.0	5.0–6.6	400–1 400	309331
No. 2	7–10	5–8	0.3–0.8	1.1–1.6	1.2–1.7	4.0–6.0	6.6–9.4	400–1 400	309097

Premium Nozzles for X21.

COOLEX® A 341 BL – Acetylene.

Rivet cutting nozzle
- → COOLEX® A 341 BL is a rivet cutting nozzle of the flicker flame type, forged from a single piece of copper
- → The nozzle is bent for good accessibility
- → Use cleaning method: KR21

Areas of application:
- → Specially intended for separating rivet joints and screw joints that have rusted solid
- → Cutting convex rivet heads or nuts and screws
- → Separating welded joints welded in T-grooves, which are cut off level with the sheet metal

Coolex A 341								
		Acetylene		Cutting oxygen			
Serial no.	mm	bar	m³/h	bar	m³/h	mm/min	Part no. 1 pack
A 341 BL-2	5–25	0.2–0.5	0.5	3.0	2.8–3.8	340–260	300666
A 341 BL-3	25–50	0.2–0.5	0.5	4.0	4.6	320–240	300665
A 341 BL-4	50–100	0.2–0.5	0.6	3.0–6.0	5.5	270–160	300664
A 341 BL-5	100–200	0.2–0.5	0.7–0.8	4.0–7.0	6.5–7.7	220–120	300663

Gouging X21.

COOLEX® A 361 – Acetylene.

COOLEX® A 361 is a gouging nozzle of the flicker flame type, forged from a single piece of copper. It has an expanding cutting oxygen duct and six powerful heating flames.

The cutting oxygen duct is designed to produce a turbulent cutting oxygen duct with a larger diametre and lower outflow speed compared to a conventional cutting nozzle.

Product benefits:
- → Turbulent cutting oxygen jet which combines with heating flames for a high level of processing
- → Powerful heating flames for a rapid start
- → Robust and long-lasting

Cutting data COOLEX A 361								
			Acetylene		Cutting oxygen			
Serial no.	mm	mm	bar	m³/h	bar	m³/h	mm/min	Part no. 1 pack
A 361-8	8–9	3–4	0.2–0.5	0.5	4.0	3.1	600	300646
A 361-10	11–12	3–6	0.2–0.5	0.6	4.0	5.6	1 000	300653
A 361-12	12–14	5–7	0.2–0.5	0.8	4.0	8.7	1 200	300652

COOLEX® A 351 B – Acetylene.

COOLEX® A 351 B is a gouging nozzle of the flicker flame type, forged from a single piece of copper. It has a cylindrical cutting oxygen duct (step nozzle) and seven powerful heating flames. The nozzle is curved and fitted with a support lug.

Product benefits:

- Turbulent cutting oxygen jet which combines with heating flames for a high level of processing
- Powerful heating flames for a rapid start
- Support lug that, in certain cases, significantly facilitates gouging
- Robust with a long service life

Cutting data COOLEX® A 351 B

			Acetylene		Cutting oxygen			
Serial no.	mm	mm	bar	m³/h	bar	m³/h	mm/min	Part no. 1 pack
A 351 B-8	6–8	3–6	0.2–0.5	0.9	5.0	5.3	600	300637
A 351 B-10	8–11	6–11	0.2–0.5	1.8	6.0	10.8	1 000	300658
A 351 B-12	11–13	10–13	0.2–0.5	2.2	7.0	19.7	1 200	300667

COOLEX® A 353 BL – Acetylene.

COOLEX® A 353 BL is a gouging nozzle of the flicker flame type, forged from a single piece of copper. It has an expanding cutting oxygen duct and six powerful heating flames. The nozzle is curved and long.

Product benefits:

- Turbulent cutting oxygen jet which, in combination with the heating flames, produces a high level of processing
- Powerful heating flames for rapid start
- Robust with a long service life

Cutting data COOLEX® A 353 BL

			Acetylene		Cutting oxygen			
Serial no.	mm	mm	bar	m³/h	bar	m³/h	mm/min	Part no. 1 pack
A 353 BL-6	6–8	3–8	0.5	1.2	6.0	5.0	600	300651
A 353 BL-8	8–11	6–11	0.5	1.7	6.8	11.5	1 000	300650
A 353 BL-10	9–12	8–11	0.5	2.0	6.5	15.0	1 000	300649
A 353 BL-12	10–15	10–13	00.5	2.3	6.5	19.0	1 200	300648

Accessories.

Flashback Arrestor SAFE-GUARD-5.

SAFE-GUARD-5 has five safety functions:

- → Turns off the gas supply in the event of penetrating flashbacks
- → Stops and extinguishes penetrating flashbacks
- → Prevents backflow
- → Turns off the gas supply in the event of overheating (95°C)
- → Simple and effective reset function

It has a connection angle of 30°. The advantage of this is that, when connected to regulators, the flashback arrestor will sit parallel with the gas cylinder.

The lever is coloured. If a flashback occurs, the lever flips out and the gas flow is stopped. To restore a flashback push the lever back and the gas flow is opened.

Flashback arrestors should also be used for propane. As oxygen increases the combustion speed, flashback arrestors should also be installed on the oxygen regulator.

SAFE-GUARD-5 is designed and manufactured according to EN 730-1. Complies with standards confirmed by BAM.

According to the Swedish National Inspectorate of Explosives and Flammables' Statute Book (SÄIFS 1998:7) in Sweden, as well as corresponding authorities in Denmark and Norway, approved flashback protection must be used on all regulators and outlet points for acetylene. In Finland, flashback arrestors are required for both acetylene and oxygen.

This is according to the standard SFS 5900, "Hot work safety in assembly, maintenance and repair work" and the insurance companies' safety instruction C8: "Flammable and roof repair work".

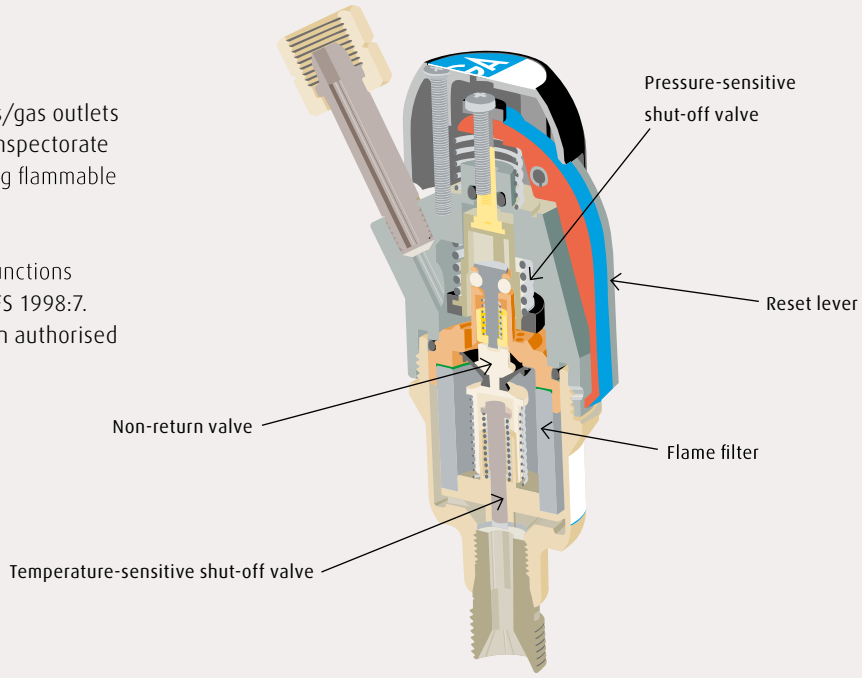
Danish Working Environment Authority's Statutory Order AT no. 147 and Statutory Order AT no. 289.

Flashback arrestor SAFE-GUARD-5			
	Gas	Connection	Part no.
SAFE-GUARD-5	Acetylene/Propane	LH G ⅜"	332143
SAFE-GUARD-5	Oxygen	G ⅜"	332142

Control

Flashback arrestors must be present on regulators/gas outlets for acetylene according to the Swedish National Inspectorate of Explosives and Flammables' regulation regarding flammable gas in single containers, SÄIFS 1998:7.

The flashback arrestor's blocking and protective functions must be tested every 24 months according to SÄIFS 1998:7. This should be carried out as external testing in an authorised workshop.



Flashback Arrestor SUPER 55.

The flashback arrestors should be used with a regulator for combustible gas and oxygen when these are used for gas welding, cutting or heating.

SUPER 55 has four safety functions:

- → Prevents backflow
- → Stops and extinguishes back-burning
- → Cuts off the supply of gas in the event of pervasive backflow
- → Cuts off the supply of gas in the event of overheating

When SUPER 55 is closed due to backflow or flashback, this is indicated by a red colour. Reset is done by lifting the cover until the red indicator disappears. SUPER 55 is suitable for most types of work except high capacity application. The capacity can be doubled by using two SUPER 55s in parallel.

SUPER 55			
Gas	Max. inlet pressure, bar	Connections	Part no.
Acetylene	1.5	G ⅜" LH	316570
Propane	5.0	G ⅜" LH	316570
Hydrogen	3.0	G ⅜" LH	316570
Oxygen	20.0	G ⅜" RH	316571

Double outlet.

When more acetylene than 5 m³/h at a working pressure of 1.5 bar or 3 m³/h at 0.8 bar (the gas flow varies with the back pressure) is required, two flashback arrestors must be connected in parallel.

Flow
At 0.7 bar and

- → Free outlet 13.3 m³/h
- → Back pressure 0.2 bar (standard test value) 10.4 m³/h

Double outlet			
	Gas	Connection	Part no.
Double outlet 2 pcs	Acetylene/Propane	LH G ⅜"	300156
Double outlet 2 pcs	Oxygen	G ⅜"	300151

One Regulator – Two Outlets.

Double gas outlet from one cylinder regulator.

Flow
At 0.7 bar and

- → Free outlet 13.3 m³/h
- → Back pressure 0.2 bar (standard test value) 10.4 m³/h

Double outlet		
Gas	Qty	Part no.
Acetylene, Hydrogen	LH G ⅜"	300148
Oxygen, Argon, Helium, Carbon dioxide, Nitrogen, Air	G ⅜"	300145

* In order to use a double outlet, two flashback arrestors are required

Two Regulators – One Gas Cylinder.

T-piece makes it possible to connect two regulators on one gas cylinder.

Two regulators – one gas cylinder		
Gas	Connection	Part no.
Acetylene	LH G ¾"	300160
Oxygen	W 21.8 x 1/14"	300163
Argon, Nitrogen	W 24.32 x 1/14"	300088

* For acetylene, flashback arrestors are required on both regulators

Safety Goggles.

Safety Goggles XC	Part no.
Safety Goggles XC clear lenses	329999
Safety Goggles XC DIN 3 lenses	330017
Safety Goggles XC DIN 5 lenses	330012


329999


330017


330012

Modern safety goggles with full coverage, non-fogging/scratch resistant lenses made of polycarbonate. Blue frame with adjustable side pieces for a perfect fit. Replaceable lenses. Potential to fit RX insert for correction glass. Corresponds to EN166 class 1FT. DIN3/5 lenses also correspond to EN169.

Safety Goggles Duality	Part no.
Safety Goggles Duality clear lenses	329997
Safety Goggles Duality DIN 3 lenses	330010
Safety Goggles Duality DIN 5 lenses	330013


330010

Traditional safety goggles with excellent coverage via integral protection at the sides. Side piece length adjustment. Potential to adjust the angle of the twistable side pieces. Corresponds to EN166 class 1FT. DIN3/5 lenses also correspond to EN169.

Safety Goggles Neptun	Part no.
Neptun shade level 5	300864

Safety Goggles with shade level 5 for gas welding, soldering and gas cutting. Neptun are ventilated and also have a flip-front mechanism. CE approved in accordance with EN 175/EN 166-F.

Polysafe safety goggles for visitor	Part no.
Safety Goggles Polysafe	322440

Safety Goggles for visitors with full-coverage polycarbonate lens in a single piece. Integral side protection and contoured nose bridge. Perforated side pieces for fitting extra safety bands. Corresponds with EN166 and EN167.

Lenses.

Lenses to googles Ø 50 mm				
	Sealing level, DIN	Area of application/description	Qty	Part no.
Welding glass	4	Gas cutting, aluminium welding, weld and hard-soldering	4	300819
Welding glass	5	Gas welding of more slender material thicknesses	4	300821
Welding glass	6	Gas welding and cutting of thicker material thicknesses	4	300791
Grinding glass	Clear	Shatterproof	2	300790

Cylinder Carts.

The cylinder carts are powder painted and can be ordered with either solid or puncture-proof wheels.

Cylinder transport cart
For transporting 1 x 20–50 litre cylinder.

Universal transport cart
For transporting one cylinder of any size from GENIE®, propane, refrigerants and gas cylinders.

AO 20
For mobile storage of 2 x 20 litre cylinders. The cart is CE marked and approved for lifting.

AO 50
For mobile storage of 2 x 40 or 50 litre cylinders. The cart is equipped with a practical storage box that can be supplied with a padlock. The cart is CE marked and approved for lifting.

AO 5/10
Small cylinder trolley perfect for 2 ea 5/10 litres cylinder, with a small storage box.

FLAME® flexible gas cart
Suitable for both 5/10 litres cylinder.
The cart is CE marked and approved for lifting, and is supplied with puncture-proof wheels as standard.

Linde Kart
Can always sit below the cylinder.
It is also possible to move the gas cylinder up stairs with the aid of the cart.

Note! Max. 20 litre cylinder. The cylinder must be anchored to a wall if it is standing in the Linde Kart.

Transport Carts Overview.

Cylinder transport cart 316759

Universal transport cart 334172

AO20 334165

AO50 334166

AO5/10 334286

Flame 334184*/ 334183

Linde Kart 320727

Transport carts							
	Cylinder transport cart	**Universal transport cart**	**AO20**	**AO50**	**AO5/10**	**Flame**	**AGA Kart**
Part no.	316759	334172	334165	334166	334286	334184*/ 334183	320727
Weight kg	9	12	13	32	10	10	2.5
Length mm	470	492	690	1 025	337	440	120
Width mm	445	548	480	790	514	400	270
Height mm	1 110	1 164	1 150	1 325	715–1 125	990	150
CE marked	No	No	Yes	Yes		Yes	
Approved for lifting	No	No	Yes	Yes	No	Yes	No
Storage box	No	No	No	Yes	Yes	Yes*	No
5–10 litre cylinder					2 ea	2 ea	1 ea
20 litre cylinder	1 ea		2 ea				1 ea
50 litre cylinder	1 ea	1 ea		2 ea			
Genie cylinder		1–2 ea					
Refrigerant cylinder		1 ea					
Propane cylinder		1–2 ea					
Type of wheels	Solid	Puncture-proof	Puncture-proof	Puncture-proof	Solid	Puncture-proof	Solid
Area of use							
	A transport cart for 1 ea 20-50 litres cylinder	A universal transport cart that can carry all types of cylinders from 2 GENIE to 1 P45 cylinder	Optimal cart for transportation or storage of 2 ea 20 litres cylinders	Optimal cart for transportation or storage of 2 ea 50 litres cylinders, with a storage box that can be locked	Small cylinder cart perfect for 2 ea 5/10 litres cylinders, with a small storage box	FLAME® flexible gas cart is perfect for mobile work demanding a CE marked trolley that is approved for lifting, 2 ea 5/10 litres cylinder	An extension of the gas cylinder in mobile areas

Accessories available								
								Part no.
Solid wheel 250 mm	X					X		318847
Solid wheel 400 mm								318848
Puncture-proof wheel 260 mm		X	X					318849
Puncture-proof wheel 400 mm				X				334273
Box for accessories, Linde FLAME®							X	320219
Box, Linde FLAME®							X	320220
Wheel AO5, Linde FLAME®								320221
Clamp belt, Linde FLAME®							X	320224

* 334184 is with two storage boxes

Welding Helmet with Auto-Darkening Glass OHE410 DIN 9-13.

AGA's welding helmet has a focus on your safety. The welding helmet provides permanent protection against ultraviolet and infrared radiation, heat and sparks. Adjustable lens sensitivity makes this helmet suitable for different welding environments. Auto-darkening of shade level DIN 9-13. The welding helmet can be adjusted while wearing welding gloves and without having to take off the helmet.

	Part no.
Welding Helmet OHE410 DIN 9-13	336228

Accessories and Spare Parts for OHE410 DIN 9-13.

	Part no.
OHE410 Inner Protective Lens (10 PCS)	336261
OHE410 TK03 Complete HG, Nuts, Bolts	336262
OHE410 Comfort Band 2-PC	336263
OHE410 Anti-Spatter Lens (10 PCS)	336264
OHE410 ADF Retainer + Thumb Screw	336265

PLEASE NOTE: ADF is not available as spare parts.

Warning Signs.

Triangle warning sign of non-flammable material must be present at each storage location for gas cylinders or gas cylinder trolleys. The design can be seen from SÄIFS 1996:3 and AFS 1997:11.

	Material	Format	Part no.
Open flame, prohibition	Plastic	Square	334407
Open flame, prohibition	Sticker	Square	334408
EX sign	Plastic	Triangle	334405
EX sign	Sticker	Triangle	334406
Gas under pressure	Aluminium	Square	334403
Gas under pressure	Sticker	Square	334404

Leak Detection Spray TL4.

TL4 is used for checking the tightness of all systems containing gas or air under pressure. Sprayed directly onto the point to be checked. If even the slightest leak is present, clear bubbles are formed. TL4 is non-hazardous. It contains no harmful substances.

Delivery form	Net weight g	Part no.
Aerosol packaging	300	300820

Mounting Brackets for Cylinders.

Cylinder brackets are available for one and two gas cylinders. These comprise a wall bracket made of stainless steel EN 1.4301 and a chain made of galvanised steel. All cylinders must be secured with cylinder brackets to prevent them tipping over.

If a cylinder tips over, it can cause personal injury and material damage. If the cylinder valve is damaged, the cylinder can start to rotate out of control. Cylinders on ships and other mobile installations must be secured with a fixed bracket.

Mounting brackets for cylinders		
Length mm	Qty gas cylinders	Part no.
260	1	301937
550	2	301957

Back Frame.

	Part no.
Back frame for 2 x 5 litre gas cylinders	305873

Fire Glove.

Fire protection gloves must always be placed in a clearly visible location adjacent to the gas cylinder stand. AGA's fire protection gloves meet the requirements according to CE Approved.

	Part no.
Fire glove	300904

Welding Hose.

The welding hose is an important part of the equipment from a safety perspective. In addition, this "last link in the gas distribution" must maintain the gas's purity through to the point of consumption.

AGA's welding and propane hoses and manufactured in accordance with EN.

The hoses are marked with gas type, dimensions and working pressure. All hoses are supplied in 40 m reels, with the exception of the black and blue/orange hoses.

- Red hose = Acetylene
- Blue hose = Oxygen
- Orange hose = Propane/Hydrogen
- Black hose = Shielding gas for gas shielded arc welding

Gas shielded arc welding is one of the welding processes that uses shielding gas as protection and a welding parametre: in the first instance TIG, MIG/MAG and plasma welding.

Note!

As the gases react differently to the rubber material in the hoses, the hoses are manufactured according to the different properties of the gases. It is therefore important to use the correct hose for the type of gas in question.

Single Hose and Twin Hose.

As gas hoses are made of rubber, they are affected by the external environment, e.g. ultraviolet radiation,which makes the rubber more brittle. It is therefore important to replace hoses frequently to avoid leaks.

Single hose – 50 metre			
Colour	Dimension, mm	Type of gas	50 m reel Part no.
Blue	6.3	Oxygen	334453
Blue	10.0	Oxygen	334454
Blue	12.5	Oxygen	334449
Orange	6.3	Propane/Hydrogen	334490
Orange	8.0	Propane/Hydrogen	334494
Orange	10.0	Propane/Hydrogen	334493
Black	5.0	Argon/Dry Flow	334496
Black	6.3	Argon/Dry Flow	334498
Black	5.0	Argon	334502
Black	6.3	Argon	334499

Twin hose – 50 metre			
Colour	Dimension, mm	Type of gas	50 m reel Part no.
Blue/Red	5.0–5.0	Oxygen/Acetylene	334455
Blue/Red	6.3–6.3	Oxygen/Acetylene	334481
Blue/Red	8.0–8.0	Oxygen/Acetylene	334482
Blue/Orange	6.3–6.3	Oxygen/Propane	334483
Blue/Orange	6.3–8.0	Oxygen/Propane	334503
Blue/Orange	10–10	Oxygen/Propane	334507

Singel hose – 10 metre			
Colour	Dimension, mm	Type of gas	10 m reel Part no.
Black	5.0	Argon/Dry Flow	316720
Black	6.3	Argon/Dry Flow	316722

Recommendation for choice of hose dimension:
Welding hose, 20 metres long, with a diametre of Ø 6.3 mm, copes with cutting materials up to 250 mm thick.

This means that
- → Hose Ø 6.3 mm can cope with all gas welding and normally gas cutting/heating
- → It is easier to work with the equipment thanks to increased mobility

Pressure drop – example
- → Hose Ø 6.3 mm, length 20 metres
- → X21 handle with non-return valves
- → X21 cutting attachment
- → Cutting nozzle: COOLEX® A-317-5
- → Regulator: UNICONTROL 500
- → Pressure at:

Regulator	8.5 bar	10.0 bar
Torch	5.2 bar	6.2 bar
Gas flow	28.000 l/h	32.800 l/h
→ Pressure drop	3.3 bar	3.8 bar

Conclusion:
Select hose Ø 6.3 mm for cutting up to 250 mm.

Twin Hose.

Twin hose with compression couplings increases safety and facilitates installation and replacement of welding hose.

Compression couplings
- → Mean that hose clips are not required, which facilitates the operation of torch handles during welding and cutting
- → Ensure correct installation, which increases safety and saves time

Twin hose with compression couplings and non-return valves BV 12				
Colour Ø mm	Dimension BV12	Non-return valve	5 metre SB Part no.	10 metre SB Part no.
Blue/Red (X11)	5.0–5.0	¼"	307680	305880
Blue/Red (X21)	6.3–6.3	⅜"		305034

Linde Quick Coupling.

AGA's patented quick couplings fit all of AGA's regulators, including older models. With quick couplings, hoses and torches can be replaced quickly and easily without the aid of tools.

Quick couplings for acetylene and hydrogen have red marking. Oxygen and other fuel gases are marked with blue.

Quick coupling without hose fitting	
Acetylene and Hydrogen	**Part no.**
Connection (female): LH G ⅜"	300787
Hose fitting (male) Ø 5.0 mm	300869
Hose fitting (male) Ø 6.3 mm	300860
Hose fitting (male) Ø 8.0 mm	300859
Quick coupling kit (female + male)	
Quick coupling kit Ø 5.0 mm	305684
Quick coupling kit Ø 6,3 mm	305685

Quick coupling without hose fitting	
Oxygen and other gases	**Part no.**
Connection (female): G ⅜"	300844
Hose fitting (male) Ø 5.0 mm	300858
Hose fitting (male) Ø 6.3 mm	300857
Hose fitting (male) Ø 8.0 mm	300885
Quick coupling kit (female + male)	
Quick coupling kit Ø 5.0 mm	305665
Quick coupling kit Ø 6,3 mm	305676
Quick coupling kit Ø 8,0 mm	305693

1. Quick coupling (female ⅜") for outlet point and regulator		
		Part no.
Fuel gas	LH G ⅜"	305639
Oxygen	G ⅜"	305653
Argon	G ⅜"	305636

2. Hose fitting (male) for quick coupling		
Fuel gas		**Part no.**
	5.0	309413
	6.3	305640
	8.0	309475
Oxygen		
	5.0	309412
	6.3	305648
	8.0	309474
Argon		
	5.0	309411
	6.3	305644

3. Quick coupling (female) with hose fitting		
Fuel gas		**Part no.**
	5.0	309416
	6.3	305632
	8.0	309476
Oxygen		
	5.0	309417
	6.3	305634
	8.0	309477
Argon		
	5.0	309418
	6.3	305628

Quick couplings for regulators/outlet points and gas hoses mean that connection and disconnection in a gas line system can be achieved quickly and easily.

Thanks to the automatic locking mechanism, it is possible to dismantle equipment under gas pressure. A secure, durable design as well as hard technical function tests ensure that Linde Quick Couplings maintain a high quality.

Quick coupling for oxygen

Hose fitting

Quick couplings in accordance with ISO 561.

The quick couplings are made of brass with hose fittings made of stainless steel.

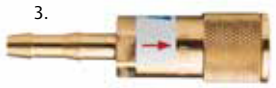
All components are adapted for each gas type for which they are to be used. The quick couplings are simple to connect/disconnect without tools. The couplings may only be used on the low-pressure side.

1. 305639

2. 305640

1. 305653

2. 305648



3. 305632

2. 305640

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Hose Fittings and Cap Nuts.

Hose fittings for X11 Pro handle, G ¼" according to EN 560	Qty	Part no.
Hose fitting Ø 5.0 mm	2	300834
Hose fitting Ø 6.3 mm	2	300932

Hose fittings for regulators and large torches, G ⅜" according to EN 560	Qty	Part no.
Hose fitting Ø 5.0 mm	2	300930
Hose fitting Ø 6.3 mm	2	300931
Hose fitting Ø 8.0 mm	2	300933
Hose fitting Ø 10.0 mm	2	300892

Cap nuts	Qty	Part no.
For X11 – handle: Cap nut Acetylene LH G ¼"+Oxygen G ¼"	1+1	300835
For regulators and large torches: Cap nut acetylene LH G ⅜"+Oxygen G ⅜"	1+1	300836
Blanking plug ⅜"		301816

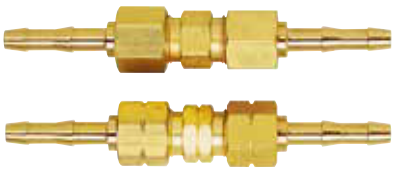
Extension Pieces.

Non-separable (whole)

Hose dimension Ø mm	Qty in SB	Part no.	SB pack
Extension piece	5.0–5.0	2	300841
Extension piece	6.3–6.3	2	300832
Extension piece	8.0–8.0	2	300833
Extension piece	10.0–10.0	2	300912

Separable

Hose dimension Ø mm	Qty in SB	Part no.
5.0–5.0 acetylene/oxygen	1+1	300929
6.3–6.3 acetylene/oxygen	1+1	300936
8.0–8.0 acetylene/oxygen	1+1	300888
10.0–10.0 acetylene/oxygen	1+1	300901



Centre Piece for Extension Pieces.

	Part no.
Centre piece LH G ⅜"	300886
Centre piece G ⅜"	300870
Centre piece LH G ¼"	300896
Centre piece G ⅜" – G ¼"	300854

Hose Clips – Hose Holder.

	Qty	Part no.
Hose clip 08–14 mm	4	300795
Hose clip 13–20 mm	2	300796

Balloon Inflator.

Intended for connection to helium bottles with gas balloon quality, for filling rubber balloons or aluminium balloons.

	Part no.
Ballon inflator	301051
Gasket	311816

Gas Saver GS 10.

Gas saver for the fuel gases acetylene and propane, as well as oxygen.
Adjustable Bunsen-type flame. No soot formation during lighting and extinguishing.

Maximum working pressure 4.5 bar. Supplied with hose fittings for Ø 5.0, 6.3 and 8.0 mm.

In addition to saving gas, GS 10 has an environmental benefit in that there are less nitrous gases from the small Bunsen flame compared to a free-burning welding or cutting flame.

	Part no.
Gas saver GS 10 for acetylene	300838
Gas saver GS 10 for propane	323294
Valve insert complete GS10	300822
Pressure plate	300139
Lever	300902
Bunsen burner	300839

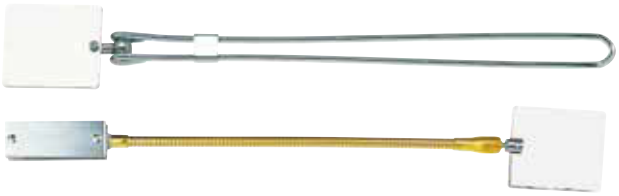
Gas Lighter.

The gas lighter comprises a sprung bar that is fitted with replaceable flint stones.

	Qty	Part no.
Gas lighter		300895
Flint stones	5	300781

Welding and Inspection Mirror.

Mirror with magnetic mount and flexible arm. The mirror is secure with a ball joint on the arm and is easy to adjust to different positions.
Length: 500 mm
Robust magnetic mount: 480 N



	Qty	Part no.
Welding and inspection mirror with magnet and flexible handle	1	300893
Welding and inspection mirror with ball joint and fixed handle	1	300780
Spare mirror made of polished stainless steel	1	300894

Cleaning Needles..

Grooved cleaning needles for cleaning outlet ducts in welding and cutting nozzles. The cleaning needles are supplied as a sheet in a metal box.

Cleaning needles.		
	Dimension Ø mm	Part no.
X11 – X21	0.5–3.0	305435
X11 – X21 – x 31 (steel case)		305554
Long	0.4–2.5	300559

Flux for Gas Welding.

Gas welding is a versatile welding process with a large area of application. Gas welding is excellent for welding unalloyed and low-alloy steel.

The choice of flux – welding wire – must take place with regard to the parent material and its composition. Consult your material supplier if in doubt.

H 44.

H 44 is a bright-drawn welding wire intended for unalloyed construction steel and some pressure vessel steel with a highest minimum breaking strength of 430 N/mm². H44 is widely used for gas welding pipes. Approved in accordance with EN 12536.

H 44 Mo.

H 44 Mo is a bright-drawn welding wire intended for unalloyed and low-alloy construction steel and some pressure vessel steel with a highest minimum breaking strength of 430 N/mm². H 44 Mo is supplemented with 0.5 % molybdenum (Mo) and consequently has a slightly wider area of application. Approved in accordance with EN 12536.

	Dimension Ø mm	Part no.
H 44		
	1.60 *700	300983
	2.00 *700	300982
	2.50 *700	300977
	3.15 *700	300981
	4.00 *700	300980
	5.00 *700	300984
H 44 Mo		
	2.00 *700	300978
	2.50 *700	300979
	3.15 *700	300985

Note!

Pay attention to how the parent material is sealed, as both silicon-sealed and aluminium-sealed steel are available on the market. With aluminium-sealed steel, there is a risk of pores in the welded items. In this case, select H 44 Mo.

Supplied in 5 kg boxes.

Designation	Suitable for steel		Principal analysis %					
	Swedish Std SS	European Std EN	C Carbon	Si Silicon	Mn Manganese	Mo Molybdenum	P Phosphorus	S Sulphur
H 44								
	1232	P 195						
	1305							
	1306							
	1311	S 235 JR						
	1312	S 235 JRG2						
	1330	P 235 GH	0.11	0.21	1.00	–	0.025	0.020
	1411							
	1412	S 275 JR						
	1430	P 265 GH						
H 44 Mo								
	1232	P 195						
	1305	GS 45						
	1306							
	1311							
	1312	S 235 JRG2						
	1330	P 235 GH						
	1411		0.11	0.21	1.00	0.50	0.025	0.020
	1412	S 275 JR						
	1430	P 265 GH						
	1434	P 265						
	1435	P 265						
	2912	16 Mo3						

Jet Freezer.

Jet freezing is used when repairing and supplementing pipe systems that contain water. The jet freezer's casing is simple to secure around the pipe. Inside the casing, dry ice is produced at a temperature of –78°C. The water in the pipe freezes and forms an ice plug, which effectively stops the continuing flow.

Dry ice is formed when the gas (CO_2) in liquid form is allowed to expand under atmospheric pressure. In order to extract carbon dioxide in liquid phase, we recommend a gas cylinder with a riser pipe.
A complete jet freezer comprises a casing, HT hose. Models 80 and 100 are equipped with two nozzles and double hoses, as well as a T-piece.

In order to know how much gas is in the gas cylinder, it can be weighed. The cylinder's tare (weight without gas) is stamped on the collar. Spring scales graduated 0–25 kg are available as an accessory.
It takes approximately 13 minutes to freeze a 28 mm pipe with a model 22 casing, and this requires approximately 1.2 kg of carbon dioxide.
To ensure that the ice plug does not thaw, a small amount of carbon dioxide needs to be released into the casing now and then to ensure it is constantly filled with dry ice.

	Part no.
Jet Freezer complete	
Mini	311341
Model 22	311342
Model 42	311343
Model 80	311344
Parts	
Casing, model Mini	311346
Casing, model 22	311347
Casing, model 42	311348
Casing, model 80	311349
Casing, model 100	311350
HT hose	311351
T-piece	311352
Spring scales 0–25 kg	311355
Gasket	311610

Guide values for the consumption of carbon dioxide and freezing time for various pipe diametres									
Casing model	Pipe diametre								
	15 mm	22 mm	28 mm	42 mm	54 mm	65 mm	80 mm	90 mm	100 mm
Model 22	3 min	6 min	13 min						
Model 42	3 min	5 min	11 min	17 min					
Model 80				20 min	35 min	50 min	75 min		
	0.5 kg	0.75 kg	1.2 kg	2.5 kg	4.1 kg	6.4 kg	9.1 kg	12.7 kg	16.4 kg

The time it takes to freeze and thaw an ice plug is dependent on the thickness of the pipe, the temperature of the water in the pipe and the ambient temperature.
The jet freezer does not damage the pipes, as freezing takes place rapidly and the freezing area is restricted.

GENIE® Cylinder Extension Handle.

The extension handle is designed for use in conjunction with the GENIE® cylinder wheel unit. The extension simply clips onto the handle area of the GENIE® cylinder and can then be extended to the length that is most comfortable for you.

	Part no.
Telescope handle	331283

GENIE® Cylinder Wheel Unit.

The cylinder wheel unit fits any size GENIE® cylinder.
The cylinder simply slips into the wheel unit and is locked in place using two diametrically opposed claw clamps.

	Part no.
Wheel kit	331282

GENIE® Regulators.

All the GENIE® regulators are manufactured to meet the stringent ISO 2503 safety and performance standards, providing exceptionally consistent flow characteristics and pressure stability as well as ease of use.

Type of gas	Regulator and gas identification ring colour	Inlet pressure	Outlet pressure/ flow	Inlet connection	Outlet connection	Part no.
GENIE® standard regulators						
Argon/MISON®	Green	300 bar	0–30 l/min	W 30 x 2	G ⅜"	335877
Nitrogen	Black	300 bar	0–10 bar	W 30 x 2	G ⅜"	335876
Nitrogen	Black	300 bar	0–50 bar	W 30 x 2	G ⅜"	335877
GENIE® PRO regulators						
Argon/MISON®	Green	300 bar	0–10 bar	W 30 x 2	G ⅜"	333914
Nitrogen	Black	300 bar	200 bar	W 30 x 2	G ⅜"	333915
Quick connector for GENIE® ViPR – Argon/MISON						
Quick connector 6.3 mm						335472
Quick connector 5.0 mm						336031

Rotam Plus.

	Part no.
Single Rotam Plus	300100
Double Rotam Plus	300100 x 2
T-piece incl. blanking plug	300104
Blanking plug	301816

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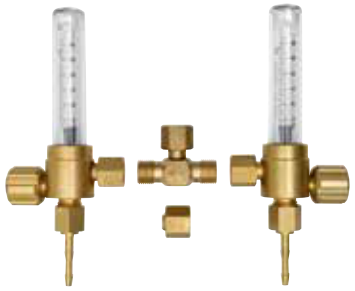

Making our world more productive

GENIE® gas cylinder.

For a better work environment.

Lightweight cylinder in a unique solid construction. Attachable wheels and telescopic handles make it easy to move the cylinder without need for heavy lifting.

The 300 bar contains up to 45% more gas, and the digital display provides information that helps facilitate your work.

GENIE® is available with Argon, Nitrogen and MISON® shielding gases.

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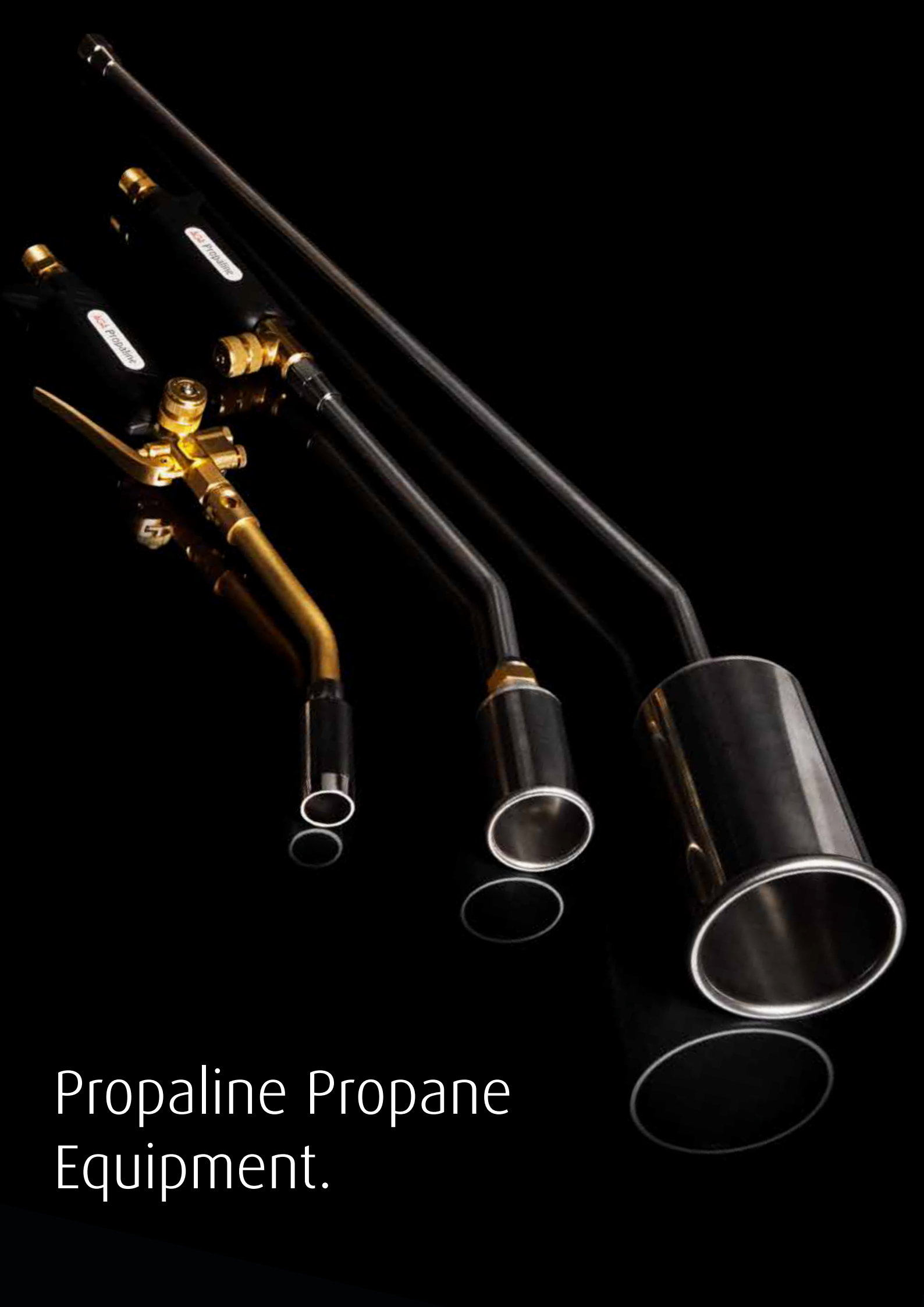
Lightweight.
300 bar -more gas.

Intelligent Digital Display

Mobile



Propaline Propane Equipment.

Regulators.

The pressure regulator keeps a stable working flow and pressure independent of fluctuations in temperature and inlet pressure. It is suitable for applications with the Linde Propaline equipment. The regulator has an integrated hose brake safety device and are manufactured in accordance with EN ISO 16129.

Regulators	Inlet connection	Outlet connection	Inlet pressure bar	Outlet pressure bar	Flow rate kg/h	Integrated hose brake valve	Part No
Finland, Baltics 4 Bar Fix SBS, Kombi	W 21.8 x 1/14"	G 3/8" LH	16	4	14	Yes	336114
Finland, Baltics 4 Bar Adjustable SBS, Kombi	W 21.8 x 1/14"	G 3/8" LH	16	0.5–4	14	Yes	336115
Sverige, Norge 4 Bar fixed	NGO 0,885 x 1/14"	G 3/8" LH	16	4	14	Yes	336605
Finland, Norway, Denmark, Baltics Kosan Type L.P.G Click on		G 3/8" LH	16	0.5–2.0	4	No	336159

Accessories

	Part No
Gasket Propane regulator Din (10 Pcs)	336321

Hose Brake Valves.

The hose brake valve safety device prevents gas leakage if the hose gets damaged or disconnected. The valve closes if there is a sudden increase of gas flow. If the valve gets activated it is resettable when the problem with the hose has been solved. The hose break valve shall be connected to the regulator outlet.

Hose break valve	Inlet connection	Outlet connection	Nominal flow rate at 1,5 bar, kg/h	Nominal flow rate at 4 bar, kg/h	Part No
SBS 1	G 3/8" LH F	G 3/8" LH M	1.5	2.2	336110
SBS 2	G 3/8" LH F	G 3/8" LH M	4.0	6.0	336111
SBS 3	G 3/8" LH F	G 3/8" LH M	6.0	8.5	336112
SBS 4	G 3/8" LH F	G 3/8" LH M	10.0	14.0	336113

Propane Hose with Compression Couplings.

Propane hose with compression couplings				
Colour	Dimension	Hosefitting	Length	Part No
Orange	6 mm	3/8"–3/8"	10 m	336293
Orange	6 mm	3/8"–3/8"	5 m	336320

Handles.

Handles are fitted with a valve that makes it easy to control flame continuously. The handle with lever provides the opportunity to switch between pilot and main flame. Combined shut-off valve and control valve.

Shank fixed							
	Working pressure	Capacity kg/h	Lenght	Weight kg	Inlet connection	Outlet connection	Part No
Pilot flame	Up to 4 bar	12	195 mm	0.36	G 3/8" LH	G 3/8"	336052
Without pilot flame	4 bar	12	195 mm	0.36	G 3/8" LH	G 3/8"	336056

Accessories

Rotating hose nipple			
Angle	Hose nipple	Connection	Part No
60°	6.3 mm	G 3/8" LH	336088
Hose connection			
	Hose Nipple	Connection	Part No
	6.3 mm	G 3/8" LH	336283

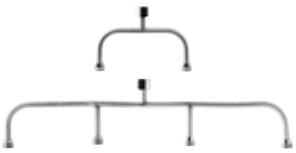
Extension Pipes.

Choose between a wide range of extension pipes in different lengths for connection to the handle. The extension pipes are made of stainless steel.

Accessories

Extension pipe	
Lenght	Part No
150 mm	336097
220 mm	336098
350 mm	336099
600 mm	336100
750 mm	336101
1000 mm	336102

Fork pipe				
	Inlet connection	Outlet connection	Width	Part No
2	M20 x 1	2 x M20 x 1	150 mm	336094
4	M20 x 1	4 x M20 x 1	450 mm	336095



Burner support	
Width	Part No
125 mm	336096

Heating Torches.

In the propane equipment it is the heating torch that creates an effective wind resistant flame. Choose between a range of standard burners for different jobs, for example: Heating, precision work and for various roofing, wall and construction work. The heating torch are especially suitable for large, heat-intensive jobs.

Heating torch						
	Diameter	Inlet connection	Working pressure bar	Consumption kg/h	Power kW	Part No
HT-I 30	30 mm	M20 x 1	1–4	0.66–1.05	8.55–13.59	336089
HT-I 40	40 mm	M20 x 1	1–4	1.2–1.9	15.44–24.48	336090
HT-I 50	50 mm	M20 x 1	1–4	3.78–7.6	48.7–97.7	336091
HT-I 60	60 mm	M20 x 1	1–4	5.0–9.7	64–125	336092
HT-I 80	80 mm	M20 x 1	1–4	5.6–10.6	72–136	336093

Soldering Torch.*

Point burner for hard and soft soldering.Point burners are especially suitable for hard and soft soldering of copper pipes and pipe fittings.

Torch						
	Lenght	Inlet connection	Working pressure bar	Consumption g/h	Power kW	Part No
BT 3	120 mm	G 3/8"	1.5–2.5	30–39	0.39–0.5	336107
BT 5	120 mm	G 3/8"	1.5–2.5	54–66	0.69–0.85	336108
BT 7	138 mm	G 3/8"	1.5–2.5	162–210	2.08–2.7	336109

Brazing Torch.*

Turbo torch for hard and soft brazing, these burners are adapted for work requiring low heat and power, eg Soft soldering and less Brazing works, as well as heating and goldsmith work. The turbo torch gives an optimal flame, which heats different materials with large surfaces both quickly and evenly. The flame, which comes from several holes, surrounds pipes efficiently and in the best way possible.

Torch TT						
	Diameter	Inlet connection	Working pressure bar	Consumption g/h	Power kW	Part No
TT-I 12	12 mm	G 3/8"	1.5–2.5	63–112	0.8–1.44	336103
TT-I 14	14 mm	G 3/8"	1.5–2.5	210–338	2.7–4.35	336104
TT-I 17	17 mm	G 3/8"	1.5–2.5	272–384	3.5–4.9	336105
TT-I 20	20 mm	G 3/8"	1.5–2.5	442–550	5.66–7.08	336106

* Typically used with the shank without pilot flame (336056).

Heating and Brazing Kits.*

Professional propane equipment in customized kits for easy start up.

Propane heating kit							
	Shank	Regulator	Hose	Extension pipe	Heating torch	Hose brake valve	Part No
Finland, Norway, Denmark, Baltics Medium performance	With pilot flame	Click-On	5 m; 6.3 mm	350 mm	HT-I 40	SBS2	336116
Finland, Baltics High performance	With pilot flame	W 21,8 x 1/14" DIN Kombi	5 m; 6.3 mm	600 mm	HT-I 60	Included in regulator	336117
Sweden, Norway High performance	With pilot flame	NGO 0,885 x 1/14"	5 m; 6.3 mm	600 mm	HT-I 60	Included in regulator	336604

Propane soldering and brazing kit				
Shank	Regulator	Hose	Turbo torch	Part No
Finland, Norway, Denmark, Baltics With pilot flame	Click on	5 m; 5 mm	TT-I 20	336118

*The regulators have a click-on or W 21,8 x 1/14" inlet connection.

Additional Information.

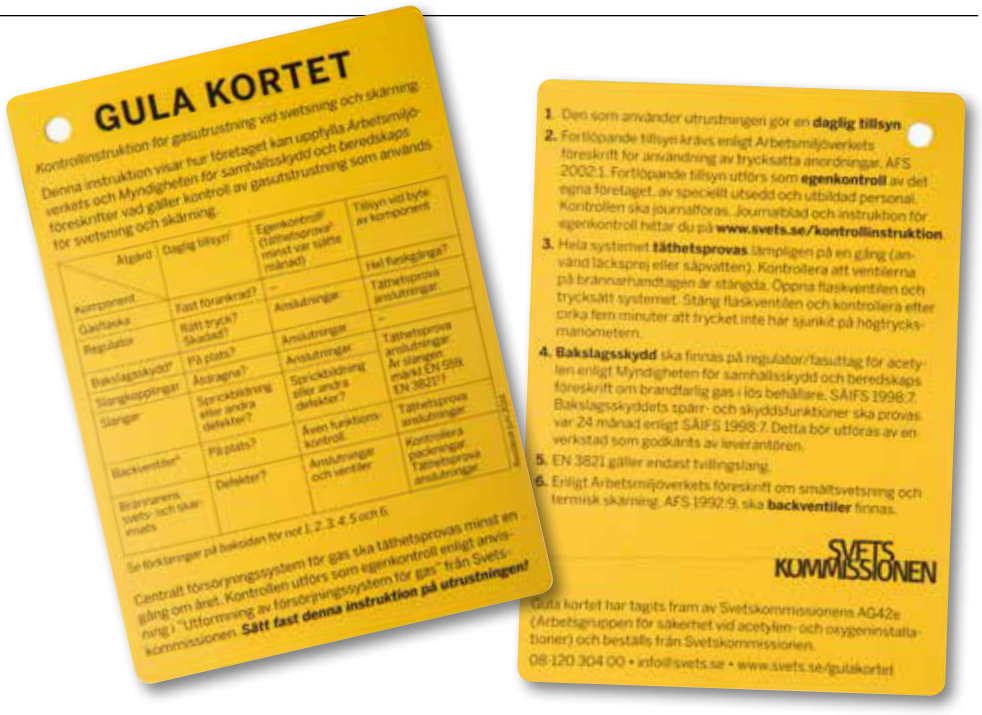
Equipped for Gas Welding.

During all welding – consider the fire risk.

Fire is the main risk when using gas equipment for welding, cutting and soldering. Fire can occur easily at a workplace that is poorly delimited and has too much flammable dust and debris, perhaps with a raised oxygen level, and with an ignition source in the vicinity. Other causes of fire can include excessive working pressure or incorrect equipment. Lack of knowledge and negligence can also eliminate the equipment's built-in safety features.

01. Regulator
02. Flashback arrestor
03. Welding hose
04. Non-return valves on the torch handle
05. Gasket between handle and insert
06. The nozzle is the cutting and welding tool's most exposed part. Look after it!
07. Fire glove
08. Securely stored gas cylinders. Secure chain on a wall or a cylinder trolley
09. Warning signs
10. Yellow card

Checklist.



Checklist / safe gas equipment		Yes	No
1. Regulator			
	Is the gasket in good condition?	☐	☐
	Is there a spare gasket?	☐	☐
	Is the regulator undamaged?	☐	☐
2. Flashback protection			
	Is flashback protection in place? Requirement for acetylene, recommended for oxygen	☐	☐
	Connections OK?	☐	☐
The flashback protection's functions must be tested every 24 months in accordance with IFS 1997:2 This must be performed by a workshop approved by the supplier. Has a test been performed in the past 24 months?			
3. Welding hose			
	Are there any cracks? If so, replace the hose package	☐	☐
	Is the welding hose suitable for the gas type? Red – Acetylene Blue – Oxygen Orange – LPG	☐	☐
4. Non-return valve			
	Is there a non-return valve in the torch handle? Perform the function check (blow from the rear)	☐	☐
5. Gasket between handle and insert (only applies to combi torches)			
	Are the seat and the gasket in good condition?	☐	☐
6. Cutting nozzle/Welding attachment			
	Is the nozzle/insert undamaged?	☐	☐
	Is the seat in good condition?	☐	☐
7. Fire glove			
	Is there a fire glove? Recommended	☐	☐
8. Gas cylinders			
	Are the cylinders at no risk of tipping over (anchored)?	☐	☐
9. Warning signs		☐	☐
10. Test airtightness (leak-trace) of the entire equipment according to point 3 on the yellow card		☐	☐
11. Yellow card "Inspection Instructions"			
	Secured to the equipment	☐	☐

The inspections described above must be logged and archived according to the Swedish Welding Commission template.
This template can be downloaded from the Swedish Welding Commission website, www.svets.se

Safety.

The Gas Cylinders.

- Most cylinders in AGA's range are fitted with fixed valve protection
- Fixed valve protection may not be removed from the cylinders
- Valve protection is not approved for crane lifting

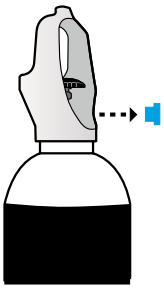
The Regulators.

Before installing the regulator, check that:

1. The control wheel is unscrewed so that the spring tension has ceased
2. The O-ring is in perfect condition

The Hoses.

- Connect the hoses to the hose fittings on the regulator and the flashback arrestor
- Secure the connections with hose clips/compression couplings
- Use Linde's welding hose. This is approved for welding gases

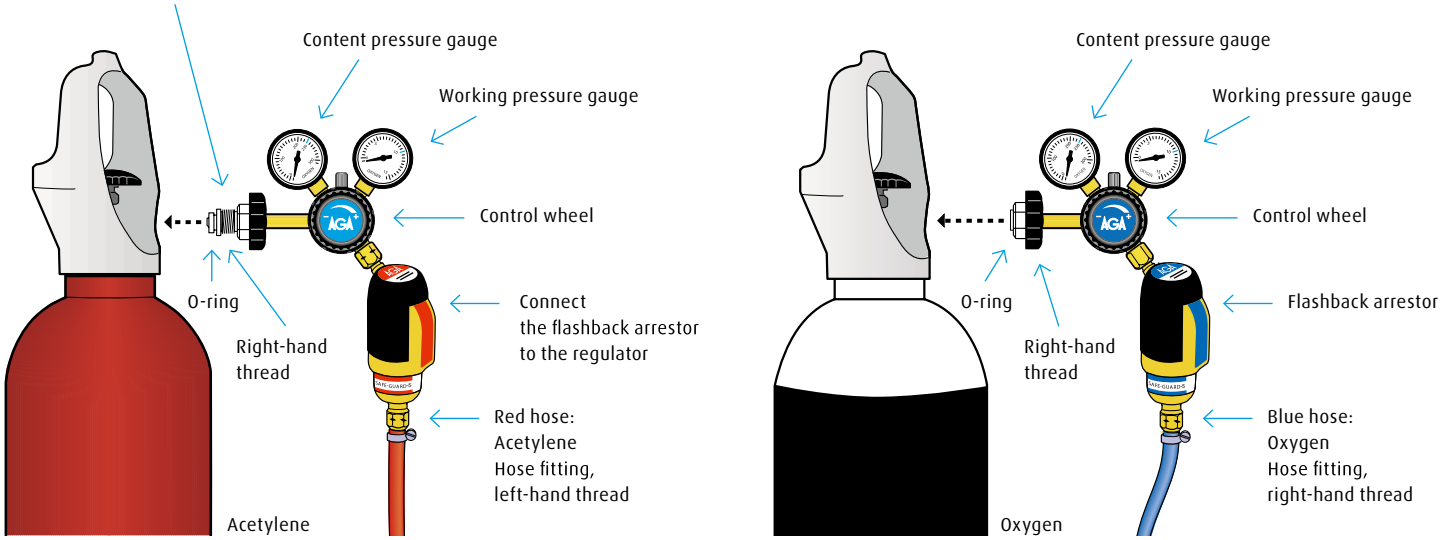


Note!

After completing the work or in the event of extended stoppages – Close the cylinder valve – Empty the hoses – Unscrew the control wheel until the spring tension has ceased.

Always use original O-rings and gaskets!

- Connect the regulators to the relevant gas cylinder
- Tighten the nuts moderately by hand. Applies to hand nuts



The content pressure gauge shows the cylinder pressure • The working pressure gauge shows the working pressure that is set with the control wheel

Calculating the content in the acetylene cylinder.

The gas content in an acetylene cylinder cannot be calculated exactly using the pressure because the acetylene's dissolubility in acetone is greatly affected by the ambient temperature. The content must therefore be calculated by means of weighing. As a guide, however, it is possible to calculate the approximate content by multiplying the reduction valve pressure in bar by the acetylene cylinder's volume in litres. Then multiply the result by 10.

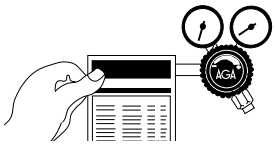
Example A50
50 l in volume, 7 bar.
The approximate gas content is 50x7x10= 350 l per cylinder = 3.5 m³ gas, which is equivalent to 3.5 kg.

Emptying speed for manual work
In the event of high consumption of acetylene, it is advisable to check that the cylinders are not being emptied too quickly. Long-term use (more than 25 % per hour of the cylinder's content) should be avoided. In the event of a shorter consumption period (approx. 30 min), the emptying speed can be increased to the equivalent of 50 % per hour of the cylinder's total gas content. High consumption of acetylene occurs during heating, welding and flame cleaning, or when several torches are connected to the same cylinder(s).

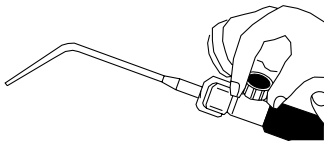
In the event of 5 minutes of consumption, the emptying speed can be increased to 75 % of the cylinder's total gas content.

Information.

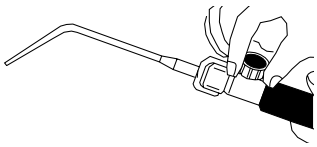
Lighting injector torch



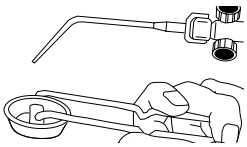
1. Set the pressure



2. Open the oxygen valve

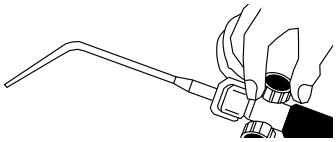


3. Open the fuel gas valve

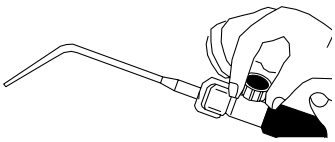


4. Light the torch

Extinguishing injector torch

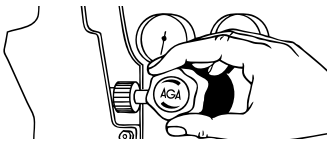


1. Close the fuel gas valve
2. Close the oxygen valve
3. Close the cylinder valve

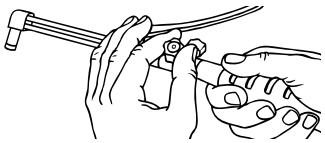


4. Relieve the hose pressure
5. Relieve the load on the regulator

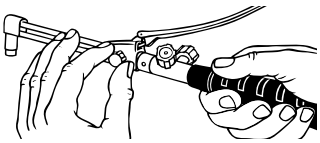
Lighting and extinguishing pressure torch



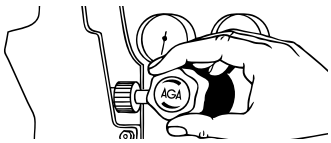
1. Set the working pressure on the cylinder regulators.



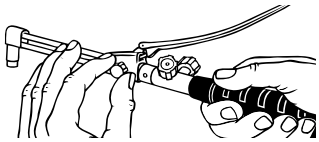
2. Open the oxygen valve on the handle fully.



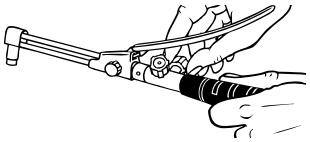
3. Open the oxygen valve on the cutting attachment and allow the oxygen to flow freely.



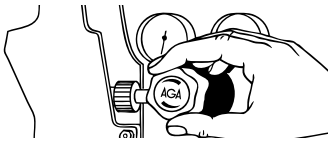
3a. Adjust the pressure on the oxygen regulator to the required level, see the cutting table.



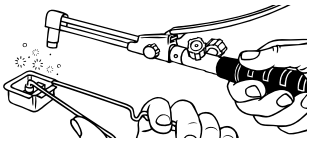
3b. Then close the oxygen valve on the cutting attachment until only a little gas is flowing out.



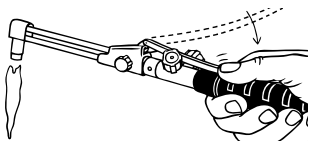
4. Open the acetylene valve on the torch handle approximately half a turn.



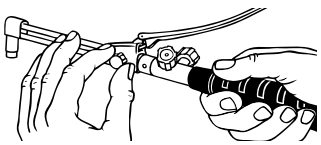
4a. Adjust the acetylene regulator until the cylinder reaches the required pressure, see the cutting table.



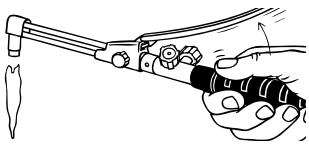
5. Light the flame (use gas lighter).



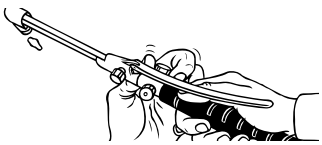
7a. Press and hold the rocker arm for the cutting oxygen.



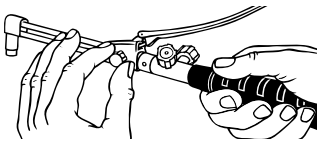
7b. Adjust the flame with the valve on the cutting attachment until you have a clear core flame immediately after the cutting nozzle.



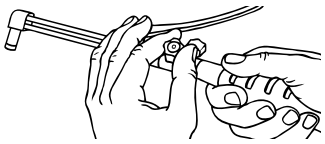
8+9. Release the rocker arm. The equipment is now ready for cutting.



10. Close the acetylene valve on the handle.



11a. Close the oxygen valve on the cutting attachment.



11b. When you leave the equipment after completing work: also close the oxygen valve on the handle.

Notes.

Getting ahead through innovation.

With its innovative concepts, Linde is playing a pioneering role in the global market. As a technology leader, our task is to constantly raise the bar. Traditionally driven by entrepreneurship, we are working steadily on new high-quality products and innovative processes.

Linde offers more. We create added value, clearly discernible competitive advantages and greater profitability.
Each concept is tailored specifically to meet our customers' requirements – offering standardised as well as customised solutions.
This applies to all industries and all companies regardless of their size.

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