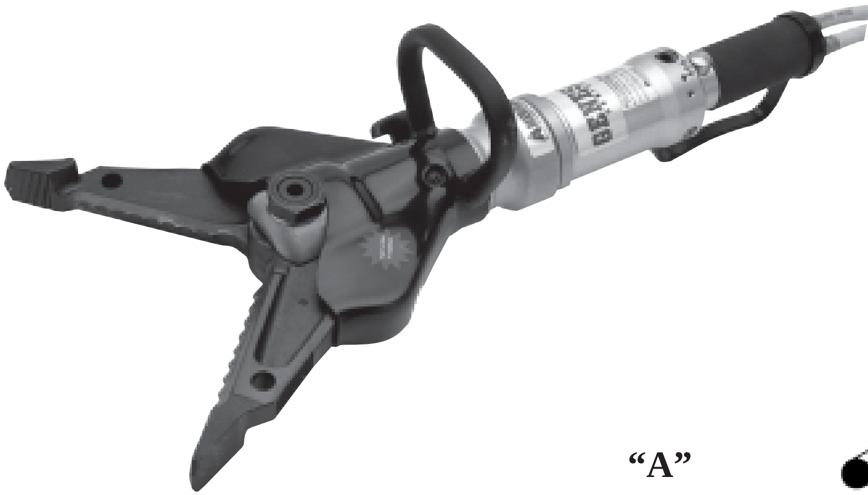

Revised March 2009

14c Vario

P/N: ART.593.196.7

Certificate Number

Z2B 07 02 62475 004

Specifications

Length (in/mm)	29.9/760
Width (in/mm)	8.5/215
Depth (in/mm)	7.9/201
Weight (lbs/kgs)	35.1/15.9
Opening (in/mm)	14.2/360
Max. Cutting Force (lbs/kN)	104,850/466
Spreading Force Up To (lbs/kN)	74,475/331.0
Pulling Force Up To (lbs/kN)	11,700/52
Operating Pressure (psi/bar)	10,500/720
NFPA Compliant	Yes
HSF (lbs/kN)	9,338/41.5
LSF (lbs/kN)	6,593/29.3
HPF (lbs/kN)	10,800/48
LPF (lbs/kN)	7,583/33.7
Max. Pulling Distance (in/mm)	17.3/439
NFPA 1936 Level Rating	A6/B8/C6/D8/E8

	1	2	3	4	5	6	7	8	9
"A" A-36 HR Round Bar	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/4"	1 1/2"	1 3/4"
"B" A-36 HR Flat Bar	1/4 x 1/2	1/4 x 1	1/4 x 2	1/4 x 3	1/4 x 4	3/8 x 3	3/8 x 4	3/8 x 5	3/8 x 6
"C" Sch. 40 A-53 Gr. B Round Pipe	3/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"
"D" A-500 Grade B Square Tubing	1/2 x .06	1 3/4 x .06	1 x.08	1 1/4 x .12	1 1/2 x .12	1 3/4 x .12	2 x .15	2 1/2 x .19	3 x .19
"E" A-36 Angle Iron	1/2 x 1/8	1 x 1/8	1 1/4 x 3/16	1 1/2 x 3/16	1 1/2 x 1/4	1 3/4 x 1/4	1 1/2 x 3/8	2 x 3/8	2 1/2 x 3/8

Independently Tested and Certified to NFPA 1936 by:

TÜV SÜD

Type tested · Production monitored

NFPA 1936 Edition 2005

www.tuv-global.com

The Added Value of NFPA 1936 Compliance

When purchasing a new rescue tool system you are making a ten year commitment to your department. The system you choose will be in use for at least ten years. Certainly our tools will last much longer than ten years, but after this period of time new advances make these tools obsolete. Over this ten year period you will use your rescue system hundreds, if not thousands of times. Each time you go out on a call you need to know your rescue tool system is going to perform as well as it did when it was first purchased.

The Intent of NFPA 1936

After seven years of work, on August 13, 1999, the NFPA issued *NFPA 1936 Standard on Powered Rescue Tool Systems, 1999 Edition.* This standard was designed to ensure fire & rescue departments a better way to compare rescue tool systems and to guarantee the quality of compliant systems. To be compliant a tool must undergo rigorous testing. The following are a few of the tests our combination tools had to endure to receive NFPA 1936 compliance.

Spreading and Pulling Performance Test

The NFPA needed to address the inconsistencies in force specifications published by the various rescue tool manufactures. Some manufactures will publish forces measured or calculated at points on the spreader that are, for all practical purposes, unuseable. Spreading forces published as "per arm" are blatantly misleading. Although this manufacturer does not instruct you to multiply the published "force per arm" times two, this is what the end user usually assumes. This is not correct and is one of the reasons the NFPA developed a spreading and pulling performance test.

This test was devised in order to bring uniformity to spreading tool specifications. These tests provide your department with legitimate means of comparing compliant tools. The forces are measured for spreading as HSF (highest spreading force) and LSF (lowest spreading force). For pulling they are measured as HPF (highest pulling force) and LPF (lowest pulling force). No longer do you have to compare spreading forces that are achieved in unusable places during the spread, or on the spreader arm. This also uncovers the blatant misrepresentation of spreading forces listed "per arm".

In this test the combination tool's spreading force is measured 1 inch in from the end of the tip at 10 uniformly spaced points, ranging from the closed position to 95% of the maximum opening. The value of the highest point is referred to as the highest spreading force (HSF) and the lowest point as the lowest spreading force (LSF). A similar test is performed to determine the pulling force. This is done by measuring the pulling force at 10 uniformly spaced points, ranging from the full open to 95% of the closed position. The value for the highest point is referred to as the highest pulling force (HPF) and the lowest point as the lowest pulling force (LPF). This gives a very precise way to measure these forces and a meaningful way of comparing them.

Overload Test

To ensure user safety and proof of proper design, the combination tool is put through an overload test. This test is done in the spreading and pulling direction of the tool. To test the spreading direction a load of 150 % of the HSF is applied to the tips of the tool for 1 minute. After that a pulling test is performed. A load of 150% of the HPF is applied for 1 minute. After this test the tool is operated and checked for leaks or other defects.

Cutting Test

The cutting test was devised to give a standardized way of evaluating cutting tools. The results allow the department to evaluate the performance of a cutting tool. This test requires that the combination tool cuts 12 pieces of the largest material in each of the five categories. The tool is only allowed one set of cutting blades and each cut is made in a single continuous motion completely severing the piece of material. In order to pass this test a tool must cut a minimum of 60 pieces of material of at least the minimum size in each category.
This is an example of a cutting test result as you see below. If the tool cuts . . .

"A": a 3/4" round bar
"B": a 1/4" x 4" flat bar
"C": a 2" ID schedule 40 pipe
"D": a 1" x .08" wall thickness square tubing
"E": a 1 1/2" x 3/16" thick angle iron

the performance level of the cutter would be:

A4/B5/C6/D3/E4

On the front of this document you will find the performance level of our combination tool.

Though this test gives you a good idea of the cutting power of the tool, there are more things to consider. Balance, features, weight, ergonomics . . . etc. need to be considered. A combination tool that can cut the largest material in each category would be very powerful, but if it weighed 150 lbs. it would be worthless for our uses.

Dynamic Endurance Test

This test is designed to prove the integrity and longevity of the tool. In this test the tool undergoes 1000 continuous operation cycles while under a spreading load equal to 80% of the LSF and while under a pulling load equal to 80% of the LPF. After this test the tool is subjected to a load equal to 110% of the HSF in the spreading direction, then a force equal to 110% of the HPF in the pulling direction. At this time the tool is disconnected from the power unit to simulate a sudden power loss. Any creep of the tool will be measured. The control valve will be operated in all three positions (open, neutral and close) for 3 minutes each. If there is over 5 mm of creep the tool fails the test.

Endurance Test

This test is designed to prove the integrity of the deadman control. The tool is subjected to 5000 cycles at no-load. A cycle is defined as the activation of the control for opening and closing the tool and its release, allowing the control to return to the neutral position. After this test the tool is subjected to the integrity test.

Integrity Test

This test ensures the quality of the blades, linkage, and pivot points of the combination tool. For this test the tool is pressurized to 150% of the rated input pressure and used to cut into a steel bar, that is beyond the tools capacity, for 1 minute. After this overload test the tool is required to cut one piece of each of the five categories of material at the performance level that the tool is rated.

Overpressurization Relief Device

According to the NFPA 1936 standard, only tools with an extension area of the activating piston rod assembly that is greater than 1.5 times the retract area of the piston rod assembly, is required to have an overpressurization relief device. In general what this means is that usually only hydraulic rams will need this device. As an added feature all Genesis rescue tools come with an overpressurization relief device built into the control assembly. At American Rescue Technology we believe that this relief device is essential to all rescue tools. This device protects the rescuer against catastrophic failures of the tool and personal injury.

It is a requirement of NFPA 1936 that the manufacturer publish the performance specifications of each tool in accordance with the standard, therefore if you're considering purchasing new rescue tools be sure to request the NFPA perforormance of each tool. If they cannot supply you this information rest assured those tools are not NFPA compliant.You should require all rescue tool companies to give detailed performance specifications, printed by the manufacturer, that conform to NFPA 1936. If their tools are not compliant ask why. NFPA 1936 was issued to stop companies from providing misleading performance figures, and help departments purchasing rescue equipment to get a high quality rescue system that performs as specified, from the first day it is put into service until the day it is replaced. This standard was written for you, use it and feel assured that you have purchased a high quality rescue tool system.

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