

SKYLOTEC

Instruction for Use

MILAN AGR 2001 MILAN HUB AGR 2001 MILAN 2.0 MILAN 2.0 HUB MILAN 2.0 POWER





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MILAN / MILAN 2.0

READ AND FOLLOW PROVIDED INSTRUCTIONS! The device must only be used by SKYLOTEC trained persons. Failure to follow all instructions may result in serious injury or death.

The device has to be inspected in accordance with the provided manufacturers instruction:

• For periodic inspections. User inspection is visual only. Please follow the detailed service instructions under point 7.

The device must only be used with original rope type "SKYLOTEC SUPER STATIC ø 9 mm".

sheath slippage (%)	3
elongation (%)	4,7
sheath proportion (%)	39,5
core proportion (%)	60,5
mass per metre (g/m)	60,7
shrinkage (%)	0,8
material	PA

Abseiling work

 $W = m \times g \times h \times n$ m: mass (kg)

g: acceleration of gravity = 9.81m/s^2

h: height (m)

n: number of descents

WARNING: Do not use incompatible rope! Do not alter the length of the rope or add terminations using knots.

Rope changes may only be carried out by persons who are trained to do so and have the appropriate authorizations.

WARNING: Avoid descending into electrical, thermal, chemical sources or other hazards.

DO NOT expose rope to sharp edges, abrasive surfaces, sparks, flames or heat.

The device has an automatic breaking system.

The device can be used bi-directional.

This instruction shall be provided to the rescuer and training providers!



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Descending- and Rescue-Device with lifting Function

according to EN 341 Class A and EN 1496, ANSI/ASSE Z359.4-2013, CSA Z259.2.3

GENERAL:

The Milan rescue device is used for the rescue of persons from height, deep working areas and confined spaces. The use is limited to persons who are of good health, have been instructed to use the device safely and have attended an appropriate user training course.

In order to rescue persons from a fall from height or suffering from other accidents as fast as possible, there has to be an emergency rescue plan considering and preparing for all possible emergency situations, which can be applied while using the device.

The rescue device is not a fall arrester!

1. BEFORE USING THE DEVICE

Prior to each application the user has to make sure the device is in good working order and the full functionality of the device is assured. The device itself and the rope, including all other components, are to be checked carefully.

It has to be ensured that:

- the Milan rope has no damage at all and runs freely through the device in both directions
- the end terminations are in good condition
- all carabiners are free of damage
- all screws are fixed
- the device is free of damages like cracks or deformations
- the anchor point is free of damages
- the device is not polluted by chemicals, lubricants or others
- the device is free from dirt or gross contaminants
- there are no other anomalies

For an inspection anchor the device on a rigid structure and pull 1 meter rope out of the device. The rope must slide out smoothly without abnormal mechanical sound.

This Inspection may be omitted only if the device is part of an emergency set which was inspected by a competent person before and stored safely in a closed container.

If there is any doubt in regard on the condition of the device it has to be inspected by a competent person and it is not allowed to be used until the inspection by a competent person has been completed. Devices which fail inspection have to be marked clearly to avoid further use.







2. APPLICATIONS

The MILAN, MILAN 2.0 is used in situations like:

- To evacuate one or more persons from height.
- High platforms or work spaces.
- Devices with lifting function may be used for the following.
- Rescue of persons from working spaces at depth (Only Milan Power).
- Rescue of persons from structures at high elevations hanging on fall arresters or positioning ropes.
- The Milan may only be used with the components and accessories approved by the manufacturer
- Only SKYLOTEC or SKYLOTEC-authorized centers are allowed to make any changes to the rescue device and provide parts for service or repair.

The **MILAN 2.0 POWER** (rescue hub with hand wheel and optional rescue device driver = RDD) also offers the following application areas

- Motorised rescue from a low-lying working position
- Motorised rescue of accident victim from a high working position
- Rescue from suspension on a fall arrester device

(hoisting, release from fall arrester and subsequent lowering)

Attention: descending with the Rescue Device Driver can cause damage to the Milan, the rope and the RDD itself. Always remove the RDD prior to any lowering operations.

3. ANCHOR POINTS

The anchor point to which the equipment is attached must comply with the current requirements of the respective country. The anchor point must keep strengths according to the EN 795. Safe anchor points include, unquestionably sound structures, strengthened ladder rungs and approved anchor points. Anchoring only on ladder rungs, window frames or heating pipes is not permitted.

The load capability and location of the anchor point are essential for the safe operation of the rescue device. The location should be chosen in the way that the rope is not touching any sharp edges or items nor running along rough wall surfaces. If a sufficient distance between the rope and wall cannot be established, an appropriate protection for the rope is to be ensured. If the device is equipped with a fixing adapter, this adapter is only a help support and connected to the device by a rated break point. (Additional fixation at an anchor point is obligatory!)

The use of adapters and accessories, which are not original SKYLOTEC-accessory, is prohibited.



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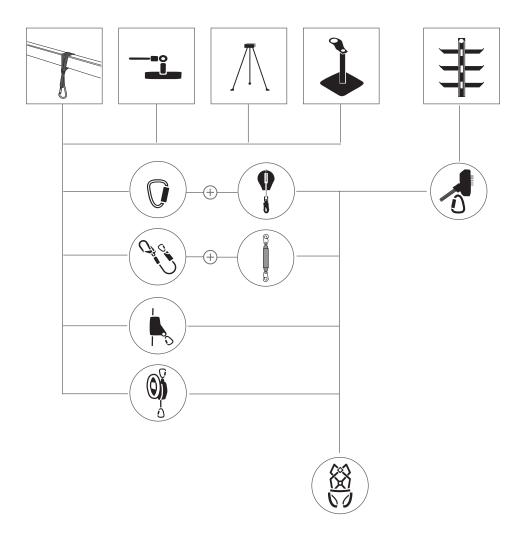


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4. USING THE DEVICE

A fall-arrest system consists of the illustrated individual components and may only be used with tested and approved components under the described application conditions; failure to comply represents a risk of serious or fatal injury.

During the rescue operation it is to be assured that all persons are protected against fall from height!







Pictogram explanation and related standards

1	Anchor point	Fall arrester + flexible anchorline	Fall arrester + rigid anchorline	Lanyards	Shock absorber	Retractable type fall arrester	Full body harness	Carabiner (Connector)	Decent Device
	→		-}}}-			> -)	3 -0
i 	795 min. 12 kN	353-2	353-1	354	355	360	361	362	341-A
	Z359.1 min.22,2 kN	Z359.1	Z359.1	Z359.3	Z359.13	Z359.14	Z359.11	Z359.12	Z359.4
_	Z259.13 / 259.15 min. 22,5 kN	Z259.2.1/ Z259.2.5	Z259.2.1/ Z259.2.5	Z259.11 Cl. A/B/C + Z259.11 Cl. E4/E6	Z259.11 Cl. A/B/C + Z259.11 Cl. E4/E6	Z259.2.2	Z259.10 Cl.A	Z259.12	Z259.2.3-1B
	,	10333-4 / 528-4	10333-4 / 528-4	10333-2 / 528-2	10333-2 / 528-2	10333-3 / 528-3	10333-1 CI.A / 528-1 CI.A	10333-3 / 528-5	
	GB 30862- 2014	24537-2009	24542-2009	24543-2009	24538-2009	24544-2009	6095-2009 Z/Y	23469- 2009	
	ı	14626	14626	15834 / 14629	15834 / 14629	14628	15836	15837	
	ı	ЕН 353-2	EH 353-1	EH 354	EH 354	EH 360	EH 361	EH 362	







4.1 DESCENDING

After the device has been attached to an anchor point the person to be rescued is attached to the descending rope. The rope can be attached to the attachment points of a belt (e.g. according to EN 361) or to the attachment points of rescue harnesses or rescue slings (e.g. according to EN 1497 or EN 1498). All connection elements must be securely closed.

If the rope between the person to be descended and the device is slack (A) the rope (B) has to be pulled through the device until it is tightened (C).

Fall arresters or fall restraint connections must be released prior to any descent. The upstream rope is released and the rescued person is lowered with a constant speed.

The descent can be stopped or slowed by controlling the rope over a friction point on the Milan device. In the case of a descending device only a karabiner may be used as the friction point.

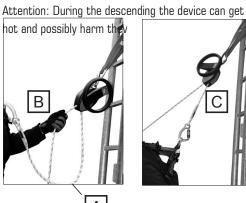
The speed of descent depends on:

- the user weight and
- the weight of the free-hanging rope entering the device, if the rope is not from a rope bag which is attached to the user, feeding out from the rope bag.





Example: Evacuation using Milan descent device.









4.2 EVACUATION

The device allows the rescue of several people in sequence. Proceed as follows: Once the first person has reached the ground and the connection to the rope has been re-leased, the next person can be attached to the end of the rope that moved up during the first descent. This rope is now the descending rope and the operation starts again. Any manual switching on the device is not necessary. Ensure that no slack rope forms during the evacuation.

The device is tested for the descend of 75 persons, with a weight of 100 kg and a descending height of 100 meters. (According to EN341.)

Heavier loads are possible; however, these will impact on the overall descending capacity of the device. See Chapter 7.1 - 7.3.

4.3 RESCUE UP

Devices equipped with a hand wheel or a Rescue Device Driver allow lifting of persons from a lower platform or level to an elevation level. After fixing the device to an anchor point and attaching the person to be rescued, the person may be lifted upwards.

While lifting, the rope clamp (F) has to be used to prevent the casualty from descending.





The transmission ratio allows heavy persons to be rescued without having to apply large amounts of effort. The handwheel must be turned in a clockwise direction (to the right).

During rescues using the MILAN 2.0 POWER ensure that the Rescue Device Driver and the MILAN are turning correctly in a clockwise direction.

The injured person should NEVER be attached to the rescuers harness.

Attention: Never descent with a rescue device driver mounted!







Do not grab onto a rotating handwheel! Never abseil with the Rescue Device Driver mounted

4.4 COMBINED APPLICATION

A person who has fallen is stuck in a fall ar-rester, a guided type fall arrester or a lan-yard. First the device is fixed to the anchor point as described before. The rope is lead through the device in such a manner that the descending rope is running out of the right side opening (view from the hand wheel side). Attach the person who needs to be rescued to the descending rope. Depending on the circumstances the person may not be reachable directly due to a fall over a roof edge or platform, the person is hanging free. In such a case, a suitable rope clamp or rescue loop (G) must be attached to the arrest lanyard by connecting it with the MILAN.

After all connecting elements have been closed securely and checked, the person suffered from a fall is lifted. (Ensure that the rope is pro-tected.) The person is lifted until the Fall arrest lanyard (the fall arrester, the guided type fall arrester, etc.) is slack (H). Now you insert the upstream rope into the rope guide and the fixing clamp of the device (F).







Now the person is disconnected from the fall arrest lanyard and the rope taken out of the fixing clamp. The descending can begin.

In case the person suffering from a fall is unconscious it is suggested that the assisting person is descending together with the injured person — this allows avoiding contact with constructions during the operation.







ATTENTION!

People hanging in the harness without moving may suffer from suspension trauma. Before using the Milan, a suitable rescue concept and a risk assessment must be worked out.

NOTE:

In case of free travel always ensure that the rope is undamaged and cannot be pulled into the rope clamp. A sudden stop can damage the rope.

4.5 POSITIONING

Travel can be stopped at any time by increasing the friction on the rope. In the case of brief pauses, the rope can be inserted in the rope clamp (after complete stop) and the device will maintain its position.

The rope should only be clamped for a SHORT period and should not be used in this position for long breaks or continuous work.

The rope may unintentionally be pulled out of the clamp, causing immediate abseiling. This unexpected change in position does not present any danger of falling, but may alarm the operator and cause an undesired reaction (dropping tools, incorrect operation of the device), as well as injuries.







4.6 ABSEILING OF 2 PERSONS

When abseiling one person the speed can be adjusted by holding the counterrope. With increased descending load, in particular by simultaneous use of two persons, the descent becomes more difficult. By deflecting the counterrope the necessary strength can be reduced. SKYLOTEC recommends always to work with a deflection on a two-person rescue scenario. Acc. ANSI the deflection is mandatory for two-person rescues. The bypass can occur via the rope hook of the Milan 2001 or the "Bull Horn" of the Milan 2.0.

If working with a deflected rope, the maximum lowest value recommended can be applied. (see chapter 7.2)

AGR 2001 (Active)



1) Guide the rope from the red cover plate into the rope hook



2) Pull the rope up into the rope clamp



3) Hold the ropes (in and out going) parallel and clip a carabiner over both



4) Ready to descend active

(Passive)



1) Attach the device to the anchor point



2) Guide the rope from the red cover plate up into the rope hook



3) Guide the rope down to the rope clamp



4) Push the rope into the rope clamp



Milan 2.0 (Active)



1) Attach the rope to the anchor point



2) Guide the Rope from the orange cover plate over the rope hook into the rope guides channel



3) Pull the rope up through the rope guide channel



4) Pull the rope down and push it into the rope clamp in the housing

(Passive)



1) Attach the device to the Anchor point



2) Pull the long end of the rope up



3) Guide the Rope from the orange cover plate over the rope hook





5) Pull the rope down and pull it into the rope guide channel



6) Pull the rope up into the rope clamp which is integrated in the housing



7) Push the rope into the rope clamp



8) Guide the Rope over the second rope hook to secure the device, ready to operate

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4.7 SELF-DESCENDING

If there are no other people than the victim and the rescuer available, there is nobody to disconnect the victim from the descending rope. It may be necessary to call for further help or apply First Aid treatments. In this case the rescuer can descend together with the casualty on one device actively. The descending rope is connected to an anchor point. The rescuer is attaching himself directly to the carabiner of the device and descends by taking the device with him.

ATTENTION:

The device offers a huge number of application possibilities for different rescue situations. To master these techniques, a professional education is mandatory by qualified rescue trainers.

5. SAFETY INFORMATION

The application of the device is only permitted if the selection of the anchor point ensures that there are no obstructions in the descent or ascent paths. During at Rescue Up scenarios a free path upward has to be ensured. It is not allowed to use the device if there is any danger by surrounding constructions, moving machines or electricity.

DANGER: Wind can blow the rope towards transmission lines. Sharp edges or abrasive surfaces can destroy the rope.

The automatic speed control of the device allows a safe descend. Nevertheless, the device should only be used by Skylotec trained persons who regularly refresh their level of knowledge by participating in training sessions. When using devices with a rescue hand wheel, attention must be paid to any hazards from rotating parts.

Environmental influences such as extreme temperatures, chemical substances, rough and sharp edges may lower the strength of the rope. Protect the equipment during transport by using suitable device bags or boxes.







6. MAINTENANCE AND STORING

Do not open the device to clean it. If there is dirt inside, the device has to be sent to an authorized repair shop. Harnesses, slings may be cleaned with warm water (40° C) and a mild soap solution. They should be washed throughout with clean water afterwards. Wet equipment is to be dried only in well-ventilated and shadowed places. Never dry them in laundry driers or with other heat sources. Avoid any contact with chemicals, oil, solution liquids or any other aggressive materials. Store them at normal room temperatures, protect them against sunrays — the best is using a special device bag or box.

7. SERVICE LIFE - REGULAR INSPECTION

Applies to: MILAN AGR 2001 (A-020; A-024), MILAN 2.0 (A-027; A-028; A-029).

The duration of the service life depends on the individual usage conditions, the plastic components are subject to an ageing process, even with careful treatment. One documented inspection must be carried out by an expert at least once per year, where the inspector and the recognized spe-cific product properties are named. Furthermore, it must be absolutely ensured, that the product was always optimally stored, never got in contact with chemicals, gases, or otherwise damaging substances.

Devices which are installed on a fixed working area and are left there in between inspections, must be appropriately protected from the elements. (e.g. SEAL PAC®). Devices which are used regularly, e.g. as training equipment, will have a shorter service life.

Modifications, alterings, repairs or supplementary equipment, may only be allowed with permission from SKYLOTEC. Infringement of this condition deletes the validity of the operation allowance and excludes the liability insurance of the manufacturer. Devices which fail inspection have to be discard from use.







GB

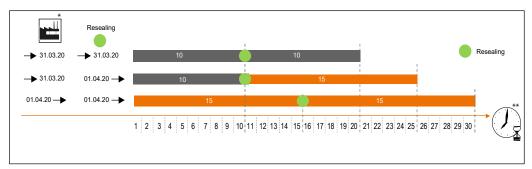
		Inspection	
	After each use (training, demonstration etc.) or If there are doubts on the devices function / safety or At least yearly Devices which are used regularly, e.g. as training equipment, may have shorter inspection intervals. Before every use	Competent person (trained acc. DGUV 312- 906 or a regional corresponding education)	
		Service LEVEL 2	
MILAN MILAN HUB MILAN POWER (NO Sealpac)	MILAN service, cleaning inside, replacement of parts (acc. to SKYLOTEC training, the included instruction and a detailed service documentation) • at least every 5 years or • After a rescue scenario or • After 2000m descending • technical uncertainties • documentation should be done in HOMEBASE	SKYLOTEC MILAN Service Level 2 training	Replacement of the brake: • At least after 10 years (Only by SKYLOTEC or SKYLOTEC Competent service stations Level 2 trained) • Inspection / replacement following the instructions on the MILAN Service Level 2 service training Replacement of textile components (Ropes, harnesses, slings): At least after 10 years
		Service LEVEL 3	
	na.	na.	na.
		Max. lifespan	
	Max. 20 years from manufacturing date (month + year) (if the replacement after 10 years has been done) Devices which are used regularly, e.g. as training equipment, may have a shorter service life.		







		Inspection	
	Yearly, according to the instruction sticker on the SEAL PAC box	Definition by site operator to define an appropriate person	
		Service LEVEL 2	
	na.	na.	na.
		Service LEVEL 3	
MILAN MILAN HUB MILAN POWER (SEALPAC)	MILAN service, cleaning inside, replacement of parts, resealing (acc. to SKYLOTEC training, the included instruction and a detailed service documentation) • At least after 15 years, the product is valid for another 15 years. After 30 years max. the device has to be discarded • If the humidity indicator on the SEAL PACS shows a deviation • After a rescue scenario • documentation MUST be done in HOMEBASE	SKYLOTEC MILAN Service Level 3 training	Replacement of the brake: • At least after 15 years, Product is valid for another 15 years (SEAL PAC Reseal service only by SKYLOTEC or SKYLOTEC Competent service stations MILAN Service Level 3 trained) • Inspection / replacement following the instructions on the Level 3 service training Replacement of textile com- ponents (Ropes, harnesses, slings): At least after 15 years
		Max. lifespan	
	Max. 30 years from manufacturing date (month + year) (if the replacement after 15 years has been done)		



^{*}Manufacturing Date ** Years Lifetime



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7.1 TESTING IN ACCORDANCE WITH EN 341 AND EN 1496 - PRINCIPLE

The standard stipulates the performance that is expected of the device before it can be approved. Once the requirements of the standard have been fulfilled, the device is approved and classified. Nominally the device is then approved for work involving the abseiling definition. In the case of the MILAN and MILAN 2.0 (class A) this means that the device is approved for an abseiling distance of 10,000m with 1 person (75kg), for example $100 \times 100 \text{ m}$ or $20 \times 500 \text{ m}$. Where it is not an emergency situation, for instance during training, safety tolerances should be maintained however, with regard to this maximum permissible load. The size of this safety tolerances is not standardized. SKYLOTECs recommendations are as follows:

7.2 AFTER THE FOLLOWING ABSEILING PERFORMANCE, SKYLOTEC RECOMMEND AN INSPECTION BY A SKYLOTEC TRAINED COMPETENT PERSON

- Abseiling distance 3,000m with one person up to 75kg
- Abseiling distance 2,500m with one person up to 100kg
- Abseiling distance 1,000m with one or two persons up to 150kg
- Abseiling distance 400m with one or two persons up to 200kg
- Abseiling distance 200m with two persons up to 260kg
- Abseiling distance 200m with two persons up to 280kg (with deflection)

7.3 PERFORMANCE ACC. THE STANDARDS

7.3.1 ABSEILING

The **MILAN** and **MILAN 2.0** abseiling device has been tested according to EN 341:2011/1A. The following requirements have been met Class A Abseiling:

- W (Work) =7,5 x 10⁶ J (corresponds 7,500 m abseiling distance with a load of 1 person: 100kg, or 10,000 m abseiling distance with a load of 1 person: 75kg)
- 1 x 500m min. load 1 person 30kg (child)
- 1 x 500m max. load 1 person 140kg

In addition to EN 341:2011/1A, testing under extreme loads has also been performed. The device is capable of abseiling with a considerably heavier load. It is essential to note that the abseilings must be reduced to a minimum in this case and the permitted number should not be exceeded.

- 1 x max. abseiling load capacities, 200m, 2 persons with overload: 260kg
- 1 x max. abseiling load capacity, 200m, 2 persons with deflection and 280kg (Caution: tested with + 25% according to EN 341.Never use with this reserve!)

7.3.2 LIFTING

The rescue up function has been tested according EN1496:2006 with loads of 30kg, 150kg and 250kg, each time with a dry and wet rope.

The maximum nominal rescue up load for Milan devices according to EN 1496:2006 is 120kg,







80m. The device can, however, support loads of up to 250kg, 10m in emergencies. In this case, manual forces and rope wear increase and no longer correspond with standard specifications. A safe rescue is still possible.

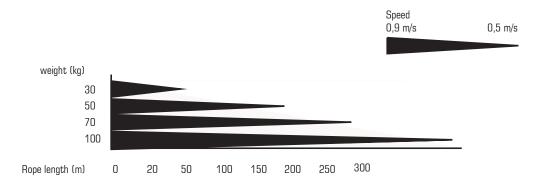
Lifting puts a greater strain on the device and the rope than abseiling. This can create slip if the lift is frequently used. This does not in general mean that there is a danger. The person can still be safely abseiled.

These values are maximum values from the approval tests and have no additional safety factor. SKYLOTEC recommends for the evacuation of larger groups and/ or over longer distances to use multiple devices and not exceed these maximum values.

7.4 RECOMMENDED MAX. ABSEILING ROPE PERFORMANCE

The lower the abseiling height, the more often the rope runs through the device. Low abseiling heights therefore result in greater wear and tear to the rope. In addition, rope wear also depends on various other factors, such as how carefully or not the user handles the rope. Edges can cause serious stress to the rope especially if the lift function is used at the same time that this can lead to greater wear and tear. The rope should also be constantly checked for wear and tear.

7.5 ABSEILING SPEEDS IN PENDULUM OPERATION AT LOW WEIGHTS



When abseiling several people, the rope counterweight must be taken into consideration. Once the incoming rope is hanging freely, low weights can only be lowered to a certain abseiling height.

7.6 REDUNDANT UNITS (STANDBY UNITS)

Training is not an emergency situation!

In general, a second independent safeguard (redundancy) is always to be used. The possibility of unforeseeable events, technical failure and human error can never be totally excluded! A second MILAN and MILAN 2.0 device, for instance, can be used as redundancy/standby.









7.7 OVERLOAD

Devices which have been subjected to the force of arresting a fall or a overload have to be removed from field. Unit is then sent to an approved service agent for inspection or repair.

7.8 TEMPERATURE

The Milan device can be used in temperatures between -35° C up to $+65^{\circ}$ C. The Rescue Device Driver can be used between 0° C and $+40^{\circ}$ C (acc. to manufacturers specification).

Test Authority: TÜV SÜD PRODUCT SERVICE GMBH

Daimlerstraße 11 85748 Garching

Germany

Manufacturer: SKYLOTEC GmbH

Im Mühlengrund 6-8 56566 Neuwied

Germany

Notified Body: TÜV SÜD PRODUCT SERVICE GMBH

Zertifizierstelle Ridlerstraße 65 80339 München

Germany

INFORMATION:

The product liability does not cover damage to property or personal injury which may occur during use. Equipment used for fall protection must be used correctly by trained personnel. Alterations to the rescue equipment or failure to comply to these instructions will void any product liability from the manufacturers.

The full Declaration of Conformity can be accessed via the following link:

www.skylotec.com/downloads



8. TECHNICAL DATA

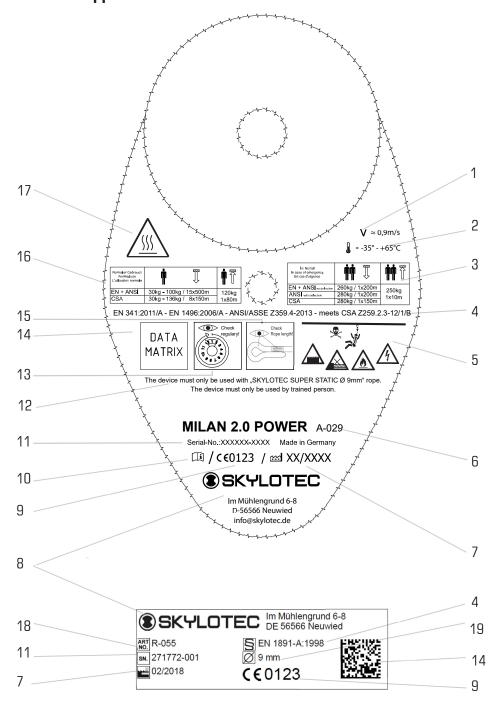
	Milan AGR 2001 (A-020)	Milan Hub AGR 2001 (A-024)	Milan 2.0 (A-027)	Milan 2.0 Hub (A-028)	Milan 2.0 POWER (A-029)
EN 341: 2011/A	>	>	>	>	>
EN 1496; 2017/A	×	>	×	>	>
ANSI 2359.4-2013	>	>	>	>	>
meets CSA Z259.2.3:2016	>	>	>	>	>
Descending and Rescue	>	>	>	>	>
Lifting function	×	>	×	>	>
Min. rated descending load			30 kg / 66 lbs	SI	
Max. rated descending load (acc. to EN 341)			100 kg		
Max. rated descending load (acc. to ANSI/CSA)			141 kg / 310 lbs	sq	
Max. rated descending load (in case of emergency)		260 kg ,	ı, 280 kg with deflection	deflection	
Max. descending height			See Cpt. 8.3	8	
Max. hub load and height (according to EN 1496)	×	120kg / 80m (RDD)	×	120kg / 80m RDD)	120kg / 80m (RDD)
Max. hub load and height in case of an emergency	×	250kg / 10m	×	250kg / 10m	250kg / 10m
Temperature range for use		-35° C up to +60° C	+60° C		
Temperature of RDD		n.v.			0-40°C
Descending speed			ø 0,9 m/s		
Weight (without rope)	2,4 kg	3 kg	2,5 kg	3,3 kg	3,3 kg
RDD-Battery min. endurance during ascent	×	×	×	×	50 m on 100kg/ 30 m on 200kg

RDD = Rescue Device Driver



9. MARKINGS ON MILAN DEVICE

9.1 EXEMPLARY REPRESENTATION OF THE MILAN 2.0 POWER (A-029) & Label support means



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1	Average descending speed
2	Application temperature range
3	Max. rated ascending load and height in case of an emergency (single use only)
4	Relevant standards
5	Avoid descending into electrical, thermal, chemical sources or other hazards
6	Product Name + item number
7	Year and month of manufacture
8	Manufacturer + address
9	CE Marking of the supervisory body
10	Read and follow instructions strictly!
11	Serial No.
12	The compatible size and Type of rope
13	Inspect regulary/ at least annually
14	Data Matrix Code
15	Check the rope lenght
16	Max. rated ascending load and height Acc. Standards (single use)
17	Caution Hot Surface
18	Article Number
19	Rope Diameter

