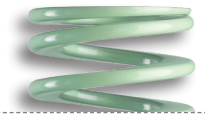
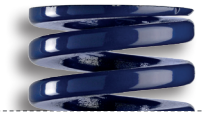
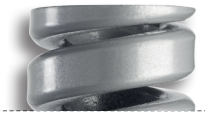
INDEX

		Series	Load	Std.	COAT	Color
▢ Rectangular Wire		VL	Extra Light	Special Springs Standard	-	Light Green
		V	Light	ISO 10243	✓	Green
		B	Medium	ISO 10243	✓	Blue
		R	Strong	ISO 10243	✓	Red
		G	Extra Strong	ISO 10243	✓	Yellow
		TO	Ultra Strong	Special Springs Standard	✓	Grey
		T	Super Strong	Special Springs Standard	-	Titanium
○ Round Wire		TV	Light	Special Springs Standard	✓*	Green
		TB	Medium	Special Springs Standard	✓*	Blue
		TR	Strong	Special Springs Standard	✓*	Red
		TG	Extra Strong	Special Springs Standard	-	Yellow
		THE	-	Special Springs Standard	-	Unpainted oiled

*Not foror6 - 8 mm

E-COAT

IT Electrophoretic coating is a process in which a metal component is immersed in a water-based solution with a current passing through the bath for deposition.

EN Electrophoretic painting is a process where a metal part is immersed in a water-based solution and an electrical current is passed through the bath for coating the part.

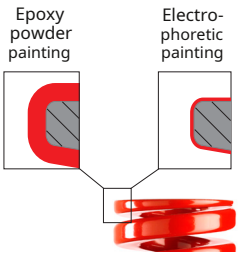
FRO The Elektrophoreselackierung is a Verfahren, bei dem ein Metallteil in eine wässrige Lösung eingetaucht wird und ein electrischer Strom zur Lackierung des Teils durch das Bad fließt.

FR The electrophoresis paint is a process whereby a metal component is immersed in a water-based solution with a quick passage across the basin to pour the liquid.

ES Electrophoretic painting is a process that is achieved by submerging a metallic component in a hot solution and applying an electric current step to effect which color is on the piece.

PT Electrophoretic painting is a process whereby the metal component is immersed in a tank with a water-based solution and an electric current passes through the table to be deposited on the piece.

MECHANICAL STRENGTH

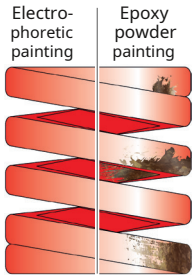


Higher thanks to lower thickness

COATING COVER

100% uniform

CORROSION RESISTANCE



Excellent resistance to corrosion

COATING Thickness

10 to 30 µm max.
No peel off

BENEFITS

Mechanical strength:	Coating cover:	Corrosion resistance:	Coating thickness:
HIGH	**100%**	**HIGH**	**THIN**

OPERATING INSTRUCTIONS

IT Proper use of Special Springs ensures performance that exceeds the lifespan specifications provided. Improper use significantly reduces lifespan and causes danger and damage.

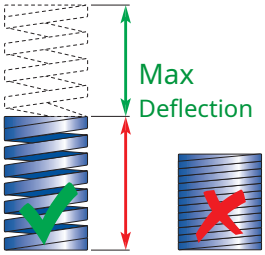
EN The correct use of Special Springs' springs assures higher performance than to the lifetime values indicated. Incorrect uses can reduce the lifetime significantly to may cause damage or injury.

FRO Der korrekte Gebrauch der Special Springs Federn guaranteed a Leistung, die höher als der angegebenen Lebensdauer ist. Ein nicht korrekter Gebrauch reduziert die Lebensdauer der Federal deutlich und kann zu Gefahren und Schäden führen.

FR The correct use of Special Springs resources ensures superior performances aux indications of four years. Incorrect uses significantly reduce lifetime values and are the cause of risks and damages.

ES The correct use of the Special Springs rollers ensures superior performance to the indicated duration indications. Incorrect usage significantly reduces durability values and can cause dangerous situations and damage.

PT Correct use of the Special Springs grinders ensures superior performances as indicated. Incorrect usage will significantly reduce the lifespan, and may also cause damage.



IT Do not use springs beyond their maximum deflection. Risk of sudden failure and damage to the mold.

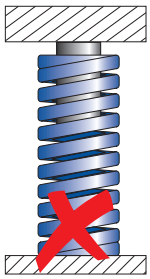
EN Do not exceed the maximum deflection. High risk of sudden failure and damage on the tool.

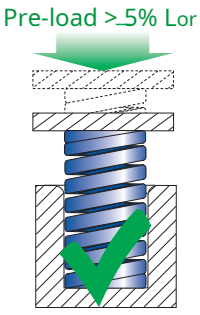
FRO Die Federn not über dem maximalen Federweg verwenden. Es besteht die Gefahr eines plötzlichen Bruchs bzw. Schäden am Werkzeug.

FR Don't miss the maximum deflection. Tres élevés de cassures soudaines et de dégats sur l'outil.

ES Do not use the rollers beyond the maximum indicated flexion. Risk of unexpected breaks and damage to the troquel.

PT Do not exceed the maximum compression of the grinding wheel, as this may cause damage to the hardware store.





IT For the same total deflection, the greater the preload, the longer the spring will last. Therefore, longer springs, for the same total force, guarantee a longer life. A minimum preload of 5% of the free length is always recommended. Lack of or insufficient preload causes premature spring failure.

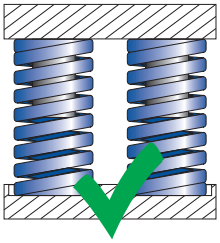
EN The bigger is the pre-load the longer is the lifetime of the spring for the same total deflection. Thus longer springs with same total force, will ensure longer lifetime. It is recommended to always apply a minimum pre-load of 5% of the free length. Absent or insufficient pre-load causes unexpected failure to the springs.

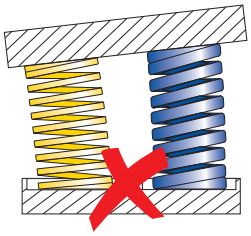
FRO Bei gleichem Gesamtfederweg gilt, dass die Lebensdauer der Federn umso höher ist, je größer die Vorspannung ist. Daher, Federn with a larger length bei gleicher Gesamtkraft guaranteeen deshalb für a long Lebensdauer. It is wird zu a Mindestvorspannung von 5% der freien Länge empfohlen. Der Mangel oder Unzulänglichkeit des Mindestvorspannung, plötzliche Erdsenkung, verursachen können.

FR Between two different longue resources, plus the price is important, plus the duration of life of the longue resources. Therefore, the most important long-term resources are total strength guarantees a longer-lasting life. We recommend a minimum pre-charge of 5% of free time. Failure or insufficiency of pre-charge causes advance payments from resources.

ES With equal total deflection, the greater the preload, the greater the duration of the wheels will be. Therefore, the wheels of greater length at equal total strength guarantee greater durability. We recommend a minimum preload of 5% of the free length. Failure or insufficiency of preload can lead to sudden loading of the wheels.

PT With equal total deflection, the greater the load, the greater the duration of the grinding wheels. Carrying larger grinding wheels with the same total force, guarantees greater durability. A minimum pre-load of 5% of total compression of the grinding wheel is recommended. Insufficient overload or pre-load may cause premature dullness of the grinding wheels.





IT If different springs are used simultaneously, ensure that the deflections and forces are balanced. Always ensure maximum perpendicularity between the contact surfaces to avoid premature spring failure.

EN When using different types of springs simultaneously, ensure that deflections and forces guarantee a balanced load. Always ensure the best perpendicularity between surfaces, to avoid early failure of the springs.

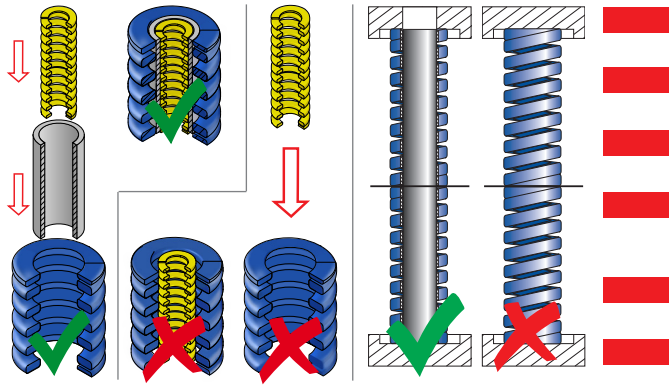
FRO Wenn gleichzeitig mehrere Federn verwendet werden, muss sichergestellt werden, dass Federweg und Kräfte ausgeglichen sind. It is necessary for a perfect Right Winkligkeit zwischen die Auflageflächen immer guaranteed be, um a vorzeitiges Nachgeben der Federn zu vermeiden.

FR If you use different resources simultaneously, make sure that the reflections and forces are similar. Guarantee maximum perpendicularity between the contact surfaces, in order to avoid the anticipated impacts of the resources.

ES Different mules are used simultaneously, ensuring that the deflections and forces are balanced. Always ensure maximum perpendicularity between the contact surfaces to avoid premature collapse of the mussels.

PT If different molas are used at the same time, make sure that the deflections and forces are balanced. Always ensure maximum perpendicularity between the contact surfaces to avoid premature failure of the grinding wheels.

TING INSTRUCTIONS



Overlapping only when fully guided. Springs coupled only in contact. Risk of sudden failure and damage.

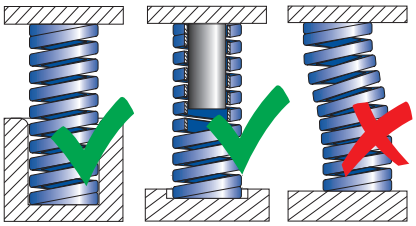
apped springs only if guided. Coupled springs only if not in contact. f sudden failure and damage.

Hangs Schraubendruckfedern nur wenn geführt. Gekoppelte Federn enn nicht in Kontakt.Gefahr von plötzlichem Versagen und Schäden.

Possible to superpose the resources uniquely if they are guided. Only resources are not available in contact. Risque de nce soudaine et de dommages.

superpuestos only are guided. Muelles caught only if not in contact. Risk of sudden failure and damage.

Please note if you are guided. Moles acopladas somente no mão counting. I risk a sudden and dangerous fall.



The longer the springs will last. It is necessary to always drive all springs with a diameter greater than 3.5 mm.

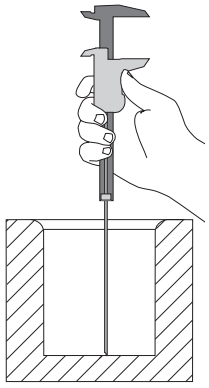
longer the lifetime. It is essential to always guide all springs with a free length /diameter ratio exceeding 3.5.

I am bigger than the Führung, this longer is the Lebensdauer of the Federn. Alle Federn müssen immer mit einem Verhältnis von Länge zu Durchmesser von mehr als 3,5 geführt werden.

Plus the guidance is precise, plus the duration of the resources will be long. You still need to drive all the resources with a length/diameter ratio greater than 3.5.

The greater the combination of guide devices, the greater will be the durability of the wheels. It is always necessary to guide all the muelles with a length/diameter ratio greater than 3.5.

PT The longer the guide, the longer the duration of the grinding wheels. It is always necessary to guide all the grinding wheels with a compression/diameter ratio greater than 3.5.



IT Mold maintenance can alter the springs' original working deflection. Always check and restore the original deflections to avoid premature failure and mold damage.

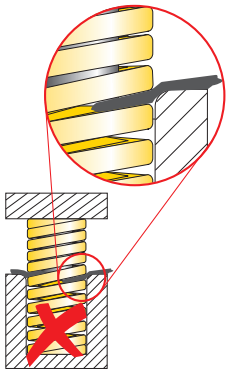
EN Tool maintenance can vary the original working deflection of the springs. Always check and re-set the original working stroke, to avoid high risk of early failures or damage of the tool.

FRO Wartungseingriffe an der Form können den ursprünglichen Federweg der Federn ändern. The original Federwege must be checked and further checked, so that it can be checked and stored in the form in question.

FR Les entretiens sur le moule peuvent modifier la déflexion du travail original des resources. Always check and record the original flexions, to avoid danger of premature injuries or pain in the mouth.

ES Maintenance of the mold can change the original working deflection of the wheels. Always check and restore the initial deflections, to avoid premature collapse of the molds or damage to the mold.

PT Hardware maintenance can change the original working deflection of the grinding wheels. Always check and adjust at the initial deflections, to avoid premature damage from the grinding wheels or damage to the hardware store.



IT Foreign objects between the spring coils can cause stroke reduction, overloads, spring breakage, and mold damage. Always inspect and remove any foreign objects.

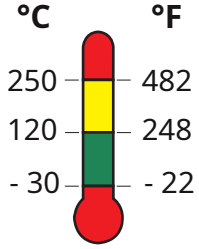
EN The presence of scraps or any solid piece between coils can cause a reduction of springs deflection, overloads and early failure of the springs and damage of the tool. Check and always remove possible scraps.

FRO The Vorhandensein von Fremdkörpern zwischen den Windungen der Federn cannn zu einer Reduzierung vom Weg, zu Überlastungen und zum Bruch der Federn und damit zu Schäden an der Form führen. Immerse this eventuellen Körper überprüfen und entfernen.

FR The presence of the body outside the coils of the resources can cause course reductions, surcharges and ruptures of the resources with the damage to the heart. Control and eliminate these corps étrangers.

ES The presence of extra bodies within the exhalations of the mules can cause carrera crashes, overloads and breakages of the mules with damage to the mold. Always look for and eliminate these extra parts.

PT The presence of foreign objects within the exhalation of the grinding wheels can cause a reduction in the load, overload and quebras of the grinding wheels, as possible, go to the hardware store. Always obtain remover of essential objects.



IT In the temperature range 120 ÷ 250°C consider a reduction in rigidity of between 1 and 2% for every 40°C.

EN In the temperature range of 120 ÷ 250°C consider a loss between 1 to 2% of the spring rate every 40°C.

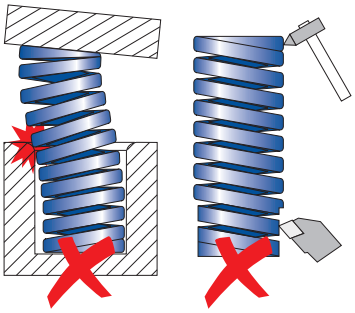
FRO At a temperature range of 120 ÷ 250°C, the temperature is 1 to 2% at 40°C to maximum.

FR At the temperature range of 120 ÷ 250°C, the user can view a reading between 1 and 2% of the temperature at 40°C.

ES In the temperature range of 120 ÷ 250°C consider a loss between 1 and 2% of the rigidity at 40°C. At a

PT temperature of 120 ÷ 250°C, consider a loss of between 1 and 2% from rigidity to each 40°C.

OPERATING INSTRUCTIONS



IT Any surface damage to the springs (cuts, abrasions, grinding) can significantly reduce their lifespan. Always replace damaged springs.

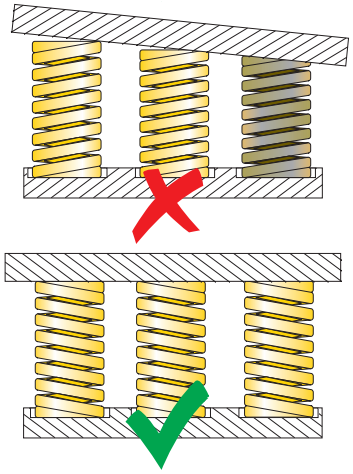
EN Any alteration on the surface of the springs (cutting, grinding, scratches, etc.) may significantly reduce their lifetime. Always replace the damaged springs with new ones.

FRON Schäden gleich welcher Art auf der Oberfläche der Federn (Schnitte, Abschürfungen, Abrieb) können die Lebensdauer deutlich reduzieren. Beschädigte Federn müssen ausgewechselt werden.

FR All damage on the surface of the resources (coupures, abrasions, meulages) can significantly reduce their duration. The faut toujours replace the endommagés resources.

ES Any damage on the surface of the grinds (cortes, abrasions, grindings) can significantly reduce the duration. Always replace damaged mules.

PT Any damage to the surface of the grinding wheels (cortes, lixamento, retrabalho) can considerably reduce the duration. Always replace damaged grinding wheels.



IT Damaged springs can create load imbalances and possible damage to other springs or the mold. Always replace all springs. Scheduled spring replacement prevents damage and reduces costs.

EN Damaged springs may cause imbalanced load, damage to the other springs and to the tool. Replace all springs. Advance planned maintenance prevents damages and saves money.

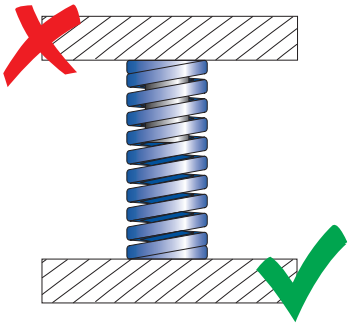
FRON During the first Feder entsteht ein Ungleichgewicht der Spannungen, durch das anderen Federn oder die Form beschädigt werden. Können es müssen immer alle Federn ausgewechselt werden. In the first place the Federn beugt Schäden vor und hilft dabei, Kosten zu senken.

FR An endommagé resort can create an unbalance of the charges with the dommages aux other resources et au moule. Replace all resources at the same time. A scheduled replacement of resources avoids problems and removes the costs.

ES A damaged mule can create an imbalance of the loads with damage to the other muelles or the mould. Always replace all the wheels. A scheduled replacement of the gears prevents damage and reduces costs.

PT A wheel that gives causes an imbalance in the loads causing damage to other wheels and no molds. Always replace all the grinders. The scheduled replacement of the grinding wheels prevents damage and reduces costs.

< 50 HRC



≥ 50 HRC

IT The springs are made of hardened alloy steels. To prevent wear and abrasion of the surfaces in contact with the springs, it is recommended to use suitable materials and hardnesses.

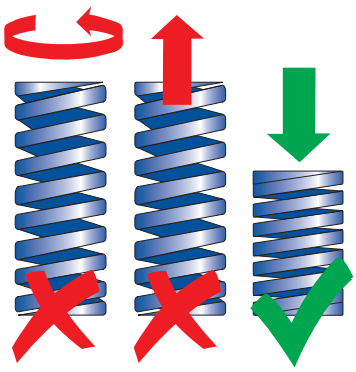
EN The springs are made with hardened alloy steel. Use surfaces with suitable material and hardness to prevent their wear and abrasion when in contact with the springs.

FRON The Federn werden aus gehärtetem Stahl gefertigt. Here, Verschleiß und Abrieb der Oberflächen in Kontakt mit den Federn wird empfohlen, mit geeigneten Materialien und Härte zu verwenden.

FR The resources are made with trempés allied aciers. To prevent wear and abrasion of surfaces in contact with resources, it is recommended to use appropriate materials and hardness.

ES The wheels are made with hardened maple. To prevent damage and abrasion of surfaces in contact with grinders, it is recommended to use suitable hard and durable materials.

PT The grinding wheels are manufactured with hardened steel. To avoid deterioration of the contact surfaces with grinding wheels, it is recommended to use material of adequate hardness.



IT Do not apply forces to springs in any direction other than the compressive direction. Applying tensile or torsional loads will cause deformation and failure. Improper use of springs can lead to unpredictable accidents resulting in property damage and personal injury.

EN Do not apply to the springs forces other than in compression direction. Use of compression springs as traction or torsion springs is cause of deformation and sudden failure. The improper use of springs may lead to unforeseen accidents with damage and injury.

FRON Bringen Sie keine Kräfte in der anderen Richtung als Kompression. The federn zu ziehen oder zu verdrehen zu verwenden, is aufgrund der Deformation und Versagen. One unsachgemäße Verwendung der Federn können unvorhersehbare Unfälle mit Sachschäden und Personen führen.

FR Don't apply the forces for compression. The use of compression, traction or torsion resources is the cause of deformation and instant breakdown. Unsuitable use of resources may cause accidental accidents with defects and cause blessures.

ES Don't apply to the violent women who don't have understanding. Using the grinders by pulling or twisting causes deformation and breakage. Improper use of the wheels can lead to unexpected accidents resulting in damage to property and people.

PT The grinding wheels must be used similarly to compression grinding wheels. Do not use the grinders as traction or torque grinders, or improper use of the grinders could cause sudden cracks and cause injuries and injuries.

ORE RATING INSTRUCTIONS

IT Avoid storing springs in the fully compressed position for extended periods. Protect springs from corrosive agents to prevent oxidation and premature failure. Always replace springs that show signs of oxidation.

EN Avoid storage of springs in the fully compressed position for long periods. Protect the springs from corrosive agents to prevent oxidation and early failures. Always replace rusty springs.

FRO Bitte vermeiden Sie long Lagerung der Federn in komplett komprimiertem Zustand. Schützen Sie die Federn vor Korrosiven Stoffen, so dass Oxidation und verfrühter Bruch vermieden werden. Rostige Federn stets ersetzen.

FR Avoid stocking the resources in the fully compressed position pending long periods. Protect the resources of corrosive agents to prevent oxidation and premature failure. Toujours replace the resources here ont the wheel.

ES Avoid storing mussels in a completely compressed position for long periods of time. Protect the teeth from corrosive agents to avoid oxide and premature breakdowns. Always replace the dies that contain oxide.

PT To avoid fatigue on the grinding wheels, do not arm the compression position. Protected locally, to avoid oxidation and corrosion. Always replace wired grinding wheels.

IT Compliance with the RoHS directive and the materials used allow the springs to be disposed of as normal scrap metal.

EN The compliance to RoHS and the material used allow to dispose springs as regular metal scrap.

FRO From the Federn die Richtlinie RoHS erfüllen and aufgrund der verwendeten Materialien können sie als normaler Metallmüll entsorgt werden.

FR The RoHS conformity and the material used allow you to treat the resources like old metals.

ES Compliance with the RoHS directive and the materials used allow you to design the wheels as normal metal chatter.

PT The grinding wheels are manufactured in compliance with RoHS, as well as the material used in the manufacturing, allowing us to discard the grinding wheels as appropriate.

HOW TO ORDER

PAINTED SPRINGS

Example:

R 40-064(10 pcs)

- Series
- D_H
- THE_0
- Quantity

UNPAINTED SPRINGS

Example:

R 40-064U(10 pcs)

- Series
- D_H
- THE_0
- Unpainted
- Quantity

Delivered with protective oil for rust protection.

HOWTO CHECK SPRING RATE (R)

R ± 10%

Spring Rate

IT Stiffness is defined as the load in N required to deflect the spring by 1 mm.

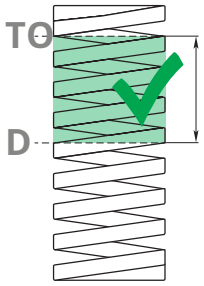
EN Spring rate is the load required in N to deflect a spring by 1 mm.

FRO The Federrate is the notwendige Kraft in N, the man benötigt, um a Feder 1 mm zu spannen. The

FR raideur is the charge required to compress the resources by 1 mm.

ES The stiffness of the knobs is the necessary load to compress a knob of 1 mm. The rigidity of

PT the grinding wheel is the load solicited in N to compress it 1 mm.



IT The verification to the rigi is carried out considering the force values detected at the deflections indicated in the columns A and D.

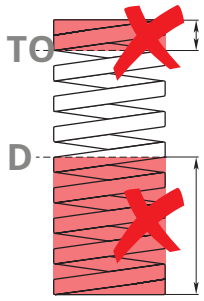
EN Springs rate is verified considering the force values as stated in columns A and D.

FRO Die Federrate wird unter Berücksichtigung der in den Spalten A und D angegebenen Kraftwerte überprüft.

FR The raider of resorts The file is checked considering the strength values indicated in columns A and D.

ES The rigidity de los muel This can be verified by considering the power values indicated in columns A and D.

PT A rigidity d as molas é verified considering the strength values indicated in columns A and D.



IT Testing the stiffness outside the indicated ranges leads to unreliable results.

EN Testing the spring rate beyond the specified ranges may lead to unreliable results.

FRO Wenn die Federrate außerhalb den angegebenen Wertebereichs überprüft wird, könnte Sie zuverlässigen Ergebnissen führen.

FR Check the resource raider at the indicated intervals to lead to unfathomable results.

ES Checking the stiffness of the wheel outside the indicated intervals can lead to unreliable results.

PT The rigidity of the grinding wheels must be verified according to the indicated steps, otherwise the objective results may vary.

R25-025

Calculation example - Calculation example - Berechnungsbeispiel - Exemple de calcul - Ejemplo de cálculo - Exemplo de cálculo

1

IT Compress the spring to fA = 5 mm (col. A) in relation to nominal length L0 and measure the force FA (N) Deflect the

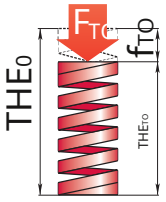
EN spring to fA = 5 mm (col. A) in relation to nominal length L0 and then measure the force FA (N) Die Schraubendruckfeder

FRO auf fA = 5 mm (col. A) imVerhältnis zur Nennlänge L0 ablenken und dann die Kraft FA (N) messen. Compress the thread

FR to fA = 5 mm (col. A) in relation to the nominal length L0 and then measure the force FA (N) Flex the thread to a fA = 5

ES mm (col. A) in relation to the nominal length L0 and then measure the force FA (N)

PT Deflex the wheel to a value of fA = 5 mm (col. A) in relation to the nominal compression L0 and then adjust the force FA (N)



2

IT Compress the spring of fD = 7.5 mm (col. D) with respect to the nominal length L0 and measure the force FD (N)

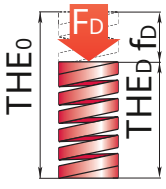
EN Deflect the spring to fD = 7.5 mm (col. D) in relation to nominal length L0 and measure the force FD (N)

FRO Die Schraubendruckfeder auf Die Schraubendruckfeder auf fD = 7,5 mm (Spalte D) im Verhältnis zur Nennlänge L0 ablenken und dann die Kraft FD (N) messen.

FR Compress the thread to fD = 7.5 mm (col. D) in relation to the nominal length L0 and then measure the force FD (N)

ES Flexion the rope to a fD = 7.5 mm (col. D) in relation to the nominal length L0 and then measure the force FD (N)

PT Deflex the wheel to a fD = 7.5 mm (col. D) in relation to the nominal compression Lo and then adjust to the L0 force and then adjust to the FD force (N)



3

IT Calculate the springs Rate R by the following formula: Die

EN Federrate R mit folgender Formel berechnen: Calculer la

FRO constante ressort R par la formule suivante: Calcular la

FR constante R con la siguiente fórmula: Calcular a constante

ES elástica da mola R pela seguinte fórmula:

PT

$$R = (F_D - F_{TO}) / (f_D - f_{TO})$$

4

IT The R value as resulted at point 3 shall correspond to the one stated in the catalog Der R-

EN Wert, wie er aus Punkt 3 entsteht, soll dem im Katalog angegebenen entsprechen La

FRO valeur R indiquée au point 3 doit correspondre à celle indiquée dans le catalog El valor R

FR como resultado en el punto 3 debe corresponder a aquel indicado en el catálogo O valor

ES de R como resultado no ponto 3 deve corresponder ao indicado no catálogo

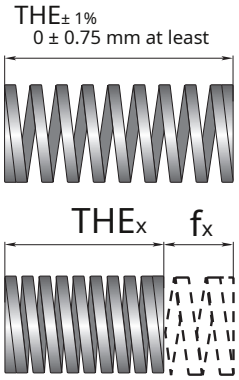
PT

R = 375 N/mm ±10%

HOW TO CALCULATE FORCE Fx

Fx=RFx

Force at Lx



IT The force of a spring Fx at a given deflection fx is the product of the stiffness and the deflection value, and is influenced by the tolerances of the stiffness R and the free length L0. The calculation is valid only for deflection values between those indicated in columns A and D.

EN The springs force Fx at given deflection fx is the result of the springs rate and the deflection value. It may be influenced by the tolerances of spring rate R and free length L0. Calculation is correct only when using deflection values in the range of columns A and D.

FRO Die Federkraft Fx bei gegebenem Federweg fx ist das Ergebnis der Federrate und des Federwegswertes. Es kann durch die Toleranzen der Federrate R und der freien Länge L0 beeinflusst werden. The Berechnung is only korrekt, wenn die Federwegswerte im Bereich der Spalten A und D verwendet werden.

FR The strength of the Fx resources in a female fx flexion is the result of the raideur and the value of the flexion. This may be influenced by the tolerances of the raideur R and the free longueur L0. The calculation is not correct that you need to use the deflection values on the side of columns A and D.

ES The strength of the Fx muscles to the deflection of the fx is the result of the rigidity of the muscles by the value of deflection. It can be influenced by the tolerance of the stiffness R and by the free length L0. The calculation is correct only when deflection values are used in the rank of columns A and D.

PT The force of the Fx grinding wheel and the deflection of the Fx is the result of the stiffness of the grinding wheel and the deflection value. This may be influenced by the tolerance of the grinding wheel stiffness R and the compression level L0. The calculation is only correct when using deflection values within the range of columns A and D.

R32- 0 76

Example of calculation - Calculation example - Berechnungsbeispiel - Calculation example - Calculation example - Calculation example

1

IT For better understanding, the nominal force value and the minimum and maximum allowable value of a R 32-076 spring at a length Lx of 55.1 mm are calculated as follows:

EN For a better understanding, the example below shows the calculation of the nominal value of force and the min and max values possible for the spring R 32-076 at a given length Lx of 55,1 mm as follows:

FRO To be sure, the dimensions should be in the nominal size of the craft and the minimum and maximum size of the Feder R 32-076 with a longer length of 55.1 mm as follows:

FR For a better understanding, we calculate the nominal value of the force and the min and max values allowed by the R 32- 076 resource in a long woman length Lx of 55.1 mm as per suit:

ES For better understanding, let's calculate the nominal power value and the minimum and maximum values allowed for the R 32-076 wheel with Lx of 55.1mm as follows:

PT For a better understanding we can calculate the value from the nominal force and the minimum and maximum values of Grinding Wheel R 32-076 in a given compression - Lx of 55.1 mm, as follows:

R = 172 N/mm ± 10%

R_{min}= 154.8 N/mm R

$_{max}$= 189.2 N/mm

THE_0= 76 mm ± 1%

$L_{0\ min}$= 75.24 mm

$THE_{0\ max}$= 76.76 mm

2

IT Nominal value of force (Fx nom) will be: Der
EN Nominalwert der Kraft (Fx nom) wird: La
FRO valeur nominato de la force (Fx nom) sera: El
FR valor nominal de fuerza (Fx nom) sería:
ES
PT The nominal force value (Fx nominal) will be:

$F_{x\ name} = R.(THE_0 - L_x)$

$F_{x\ name} = 172.(76 - 55.1)$

$F_{x\ name}$= 3595 N

3

IT Il valore minimo di forza (Fx min) sarà: Min
EN value of force (Fx min) will be: Der
FRO Minimalwert der Kraft (Fx min) wird: La
FR valeur min de force (Fx min) sera: El valor
ES mínimo de fuerza (Fx min) sería: O valor
PT mínimo da força (Fx min) será:

$F_{x\ min} = R_{min} \bullet (THE_{0\ min} - L_x)$

$F_{x\ min} = 154.8.(75.24 - 55.1)$

$F_{x\ min}$= 3117.67 N

4

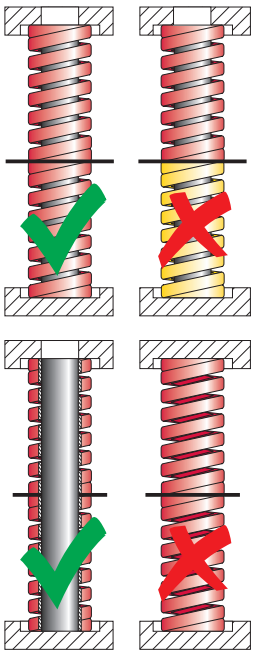
IT The maximum value of force (Fx max)
EN will be:
FRO The maximum value of the power (Fx max) is: The
FR maximum value of force (Fx max) will be: The
ES maximum value of force (Fx max) will be: The
PT maximum value of force (Fx max) will be:

$F_{x\ max} = R_{max} \bullet (THE_{0\ max} - L_x)$

$F_{x\ max} = 189.2.(76.76 - 55.1)$

$F_{x\ max}$= 4098.07 N

HOW TO CALCULATE FORCE F
Springs in series



IT The total force of a number of springs in series (FTOTAL) at a given deflection is the product of the total stiffness (RTOTAL) multiplied by the total deflection value (fTOTAL), and is equal to the force of a single spring. The calculation is valid AloneFor soft and in itself Plug which between the V The installation instructions already indicated in the catalogue apply. For the springs in series the guide pin must be unique and must guide completely.

EN The total force of a number N° of overlapped springs (FTOTAL) to a given deflection, is the product of the total Spring rate (R TOTAL) multiplied by the value of the total deflection (fTOTAL), and is equal to the force of every single springs. The calculation is valid only for overlapped springs identical to each other. The installation indication already listed in the catalog are also valuable for this application. For the overlapped springs the guiding pin should be in one piece and guiding the entire spring.

FRO Die Gesamtkraft von einer Nummer aus überlappende Schraubdruckfedern (FTOTAL), bei einer gegebenen Federweg, ist das Produkt aus der Gesamt Federrate (RTOTAL) multipliziert with the Gesamtfederwegwert (fTOTAL) und stimmt mit der Kraft ein einzelnes Federn überein. The Berechnung gilt only für in überlappende Schraubdruckfedern, die untertereinander gleich sind. Es gelten die bereits im Katalog angegebenen Montagehinweise. Bei überlappende Schraubdruckfedern muss der Führungsstift eindeutig sein und vollständig führen.

FR The total force of a number of resources in the series (FTOTAL), à une flexion femnée, est le produit de la rigidité total (R TOTAL) multiplied by the total flexion value (fTOTAL), and is similar to the strength of a Seoul resort. The calculation is valid only for identical resources among each other and assembled in series. The installation instructions are now indicated in the remaining valid catalogues. Pour les resources en serie la tige de guide doit être monolithique et doit guider complete.

ES The total strength of a number of muelles in series (FTOTAL) with a determined deflection, i.e. the product of the total stiffness (RTOTAL) multiplied by the value of the total deflection (fTOTAL), and it is equal to the strength of a single muelle. This calculation is valid only for muelles in the same series. The installation instructions in the catalog remain valid. For the stories in the series, the guide must be monolithic and must be completely explained.

PT A total number of grinding wheels in the series (FTOTAL) with a determined deflection is produced by total stiffness (RTOTAL) multiplied by the total deflection value (fTOTAL) and is equal to the value of a single grinding wheel. This calculation is valid only for series wheels and wheels. The installation indication is indicated in this catalogue. For series grinders, the internal guide must be unique for all grinders and must be completely guided.

Example:R32-076

Calculus springs in series - Calculation for overlapped springs - Berechnung für überlappende Schraubdruckfedern - Calcul pour ressort en serie - Calculo para muelles en serie - Calculo pra molas em serie

1

IT For better understanding, we calculate the values of deflection (f), nominal length (L0), stiffness (R) and force (F) of a spring R 32-076 for the number of springs to be used, example 3 pcs:

N° = 3 pcs

EN To better understand, we calculate the values of deflection (f), nominal length (L0), spring rate (R) and force (F) of a spring R32-076 by the number of springs to use, for example 3 pcs:

FRO To be more precise, we would like to know the werten of Federweg (f), nominal length (L0), Federrate (R) und Kraft (F) aus eine schraubdruckfedern R 32-076 bei di Nummer von benutzten federn, zB 3 federn:

f = 22.8 mm

FR Pour mieux comprendre, on calcule les valeurs de déflexion (f), nominal longueur (L0), stiffness (R) and force (F) of a R32-076 resource for a number of resources to use. For example 3 pieces:

THE0= 76 mm

ES For better understanding, calculate the values of deflection (f), nominal longitude (L0), stiffness (R) and strength (F) of a wheel R 32-076 for the capacity of the wheels that will be used, example for 3uds:

R = 172 N/mm

PT For better understanding, you can calculate the deflection value (f), nominal compression (L0), stiffness (R) and strength (F) of a grinding wheel R32-076 for a number of grinding wheels if used, example 3 pieces:

F = 3922 N

2

IT Calculate the total deflection (fTOTAL), total length (LTOTAL) and total stiffness (RTOTAL) applying the following formulas:

$f_{TOTAL} = f \cdot N°$ $THE_{0\,TOTAL} = L_0 \cdot N°$

EN Calculate total deflection (fTOTAL), total length (LTOTAL) and total spring rate (RTOTAL), by applying the following formulas:

$f_{TOTAL} = 22.8 \cdot 3\ f$ $L_{0\,TOTAL} = 76 \cdot 3$

FRO Berechnen die Gesamtfederweg (fTOTAL), total lengths (LTOTAL) and the Federal Assembly (RTOTAL) bei benutzung diesen Formeln:

$_{TOTAL} = 68.4$ mm $THE_{0\,TOTAL} = 228$ mm

FR Calculer the total deflection (fTOTAL), total length (LTOTAL) and rigidity (RTOTAL) in applying the following formulas:

$R_{TOTAL} = R / N°$

ES Calculate the total deflection (fTOTAL), total length (LTOTAL) and rigidity (RTOTAL) applying the following formulas:

$R_{TOTAL} = 172 / 3$

PT Calculer the total deflection (fTOTAL), total length (LTOTAL) and rigidity (RTOTAL) in applying the following formulas:

$R_{TOTAL} = 57.3$ N/mm

3

IT The total force value (FTOTAL) will be equal to the force (F) of the single spring: The total

EN value of strength (FTOTAL) will be equal to the force (F) of the single spring:

$F_{TOTAL} = R_{TOTAL} \cdot f_{TOTAL}$

FRO Das wert vor die Gesamtfederweg (FTOTAL) stimmt with the Kraft (F) ein einzelnes Federn überein: The total

FR value of force (FTOTAL) sera cell de la force (F) du ressort simple: The value of total deflexion (FTOTAL), and it

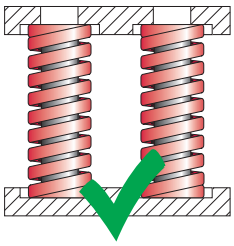
$F_{TOTAL} = 57.3 \cdot 68.4$

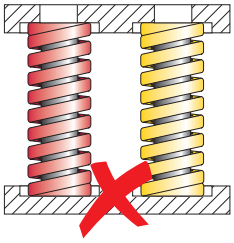
ES is equal to the strength (F) of a single wheel: The total value of strength (FTOTAL) is the same as the force (F)

$F_{TOTAL} = F = 3922$ N

PT of a single grinding wheel:

HOW TO CALCULATE FORCE F
Springs in parallel





IT The total force (F_{TOTAL}) of a number of springs (N°) in parallel at a given deflection (f) is the product of the total stiffness (R_{TOTAL}) for the total deflection value (f_{TOTAL}). The value of F_{TOTAL}It is equal to the force (F) of a single spring multiplied by the number (N°) of springs used. The calculation is valid only for springs in parallel that are equal to each other. Valg or the installation instructions already indicated in the catalogue.

EN The total force (F_{TOTAL}) of a number (N°) of springs in parallel to a given deflection (f), is the product of the total Spring rate (R_{TOTAL}) by the value of the total deflection (f_{TOTAL}). The value $F_{TOTAL}$is equal to the force (F) multiplied of one single spring by the number (N°) of springs used. The calculation is valid only for springs in parallel and identical to each other. The installation indication already listed in the catalog are also valuable for this application.

FRO Die totales stärke (F_{TOTAL}) von einer Nummer (N°) aus schraubdruckfedern in parallel, zu eine gegebene Federweg (f), ist das Produkt des Gesamt Federrate (R_{TOTAL}) bei Gesamtfederweg (f_{TOTAL}). Das wert aus F_{TOTAL}ist gleich zur Stark (F) von einige Schraubdruckfedern, multipliziert bei der Nummer (N°) von benutzten federn. The Berechnung gilt only für Schraubdruckfedern in parallel, die undertereinander gleich sind. Es gelten die bereits im Katalog angegebenen Montagehinweise.

FR The Total Force (F_{TOTAL}) of a number (N°) of resources parallel to a female flexion (f), this is the product of total rigidity (R_{TOTAL}) for the value of total flexion (f_{TOTAL}). The value of F_{TOTAL}This is the same as the strength (F) of one resource multiplied by the number (N°) of resources used. The calculation is only valid for identical parallel resources between each other. The installation instructions are now indicated in the remaining valid catalogues.

ES Total force (F_{TOTAL}) of a number (N°) of wheels in parallel with a determined deflection (f), which is the product of the total stiffness (R_{TOTAL}) multiplied by the value of the total deflection (f_{TOTAL}). The value of F_{TOTAL}It is the same as the strength (F) of a single wheel multiplied by the number (N°) of wheels used. This calculation is valid only for the same two wheels in parallel. The installation instructions in the catalog remain valid.

PT A força total (F_{TOTAL}) of a number of grinding wheels (N°) parallel to a certain deflection (f) is produced by total stiffness (R_{TOTAL}) total deflection value (f_{TOTAL}). The value of F_{TOTAL}It is the same as (F) of a single grinding wheel multiplied by the number (N°) of the grinding wheels used. The calculation is valid only for wheels in parallel and without problems. Follow the installation instructions listed in the catalogue.

Example:R32-076

Calculus springs in parallel - Calculation for springs in parallel - Berechnung für schraubdruckfedern in parallel - Calcul pour ressorts en parallele - Calculo para muelles en paralelo - Calculo pra molas paralelas

1

IT For a R 32-076 spring identify the deflection values (fx), nominal length (L_0), stiffness (R) and strength (F).

EN Of a spring R32-076, identify the values of deflection (fx), nominal length, (L_0), spring rate (R) and force (F).

FRO Identifizieren Sie für a Feder R32-076 die Werte der Federweg (fx), der nominales length (L_0), der Federrate (R) and der Kraft (F).

FR For a resource R32-076, identify the values of flexion (fx), nominal length (L_0), rigidity (R) and force (F).

ES From a wheel R 32-076 identify the deflection values (fx), nominal longitude (L_0), rigidez (R) y fuerza (F).

PT For an R32-076 grinding wheel, identify the deflection values (fx), nominal compression (L_0), rigidez (R) e força (F).

N° = 3 pcs

f = 22.8 mm

THE_0= 76 mm

R = 172 N/mm

F = 3922 N

2

IT The values of deflection (fxTOT) and nominal length (L_{0TOT}) are equal to the values of a single spring. Calculate the stiffness (R_{TOTAL}):

EN The deflection values (fxTOT) and nominal length (L_{0TOT}) are equal to the values of single spring. Calculate stiffness (R_{TOTAL}):

FRO This is true for the federweg (fxTOT) and nominal length (L_{0TOT}) stimmen with the werten ein einzelnes Federn überein (R_{TOTAL}):

FR Les valeurs de déflexion (fxTOT) et longueur nominal (L_{0TOT}) are equal to the values of a seul resort. Calculate stiffness (R_{TOTAL}):

ES The deflection values (fxTOT) and nominal longitude (L_{0TOT}) are equal to the values of a single muelle. Calculate the stiffness (R_{TOTAL}):

PT The deflection values (fxTOT) and nominal compression (L_{0TOT}) is trouble with the values of a single grinding wheel. Rigid calcules (R_{TOTAL}):

f_{TOTAL}= f

f_{TOTAL}= f = 22.8

f_{TOTAL}= 22.8 mm

$THE_{0\ TOTAL}$= L_0

$THE_{0\ TOTAL}$= L = 76

$THE_{0\ TOTAL}$= 76 mm

R_{TOTAL}= R · N°

R_{TOTAL}= 172 · 3

R_{TOTAL}= 516 N/mm

3

IT The total force value (F_{TOTAL}) will be equal to the force (F) of the single spring times the number of springs (N°):

EN The total values for force (F_{TOTAL}) will be equal to the force (F) of the single springs by the number of springs (N°):

FRO Die Gesamtwerte der Kraft (F_{TOTAL}) entsprechen der Kraft (F) der einzelnen Federn und der Anzahl der Federn (N°):

FR The total value of force (F_{TOTAL}) is equal to the strength (F) of one single resource multiplied by the number of resources (N°):

ES El valor total de fuerza (F_{TOTAL}) will be equal to the strength (F) of a single muelle by the number of muelles (N°):

PT O valor da força total sera (F_{TOTAL}) is the same as fork (F) of a single grinding wheel multiplied by the number of grinding wheels (N°):

F_{TOTAL}= R_{TOTAL}· f_{TOTAL}

F_{TOTAL}= 516 · 22 ,8

F_{TOTAL}= 11766 N

F_{TOTAL}= F · N°

F_{TOTAL}= 3922 · 3

F_{TOTAL}= 11766 N

HOW TO SELECT SPRINGS

1

IT For a quick selection of springs, it is sufficient to define: duration, housing diameter, total force and total deflection of use with pre-load at least 5% L0.

EN For a quick selection, you are requested to define estimated life, hole diameter, total force and total working deflection including at least 5% pre-load.

FRON For one item of Auswahl sollen Sie die geschätzte Lebensdauer, den Hülsensdurchmesser, die Gesamtkraft und die gesamte Arbeitsfederweg einschließlich mindestens 5% Vorspannung defineren.

FR For a quick selection, you must define the estimated duration of travel, the diameter of the log, the total force and the total work flexion including a 5% additional charge.

ES For a quick selection, ask you to define the estimated useful life, the diameter of the housing pin, the total force and the total deflection of the work, including at least a 5% preload.

PT For a quick selection, you are asked to define the estimated life, or diameter of the housing, at total force and total deflection of the work, including less than 5% of pre-load.

2

IT Find the duration values and DH diameter from the table on page 15.

EN Find the estimated life and the hole diameter DH as stated in chart at page 15.

FRON The geschätzte Lebensdauer und den Hülsendurchmesser DH finden Sie in der Tabelle auf Seite 15.

FR Find the estimated length of time and diameter of the DH log as indicated in the table on page 15.

ES Here is the estimated life and diameter of the DH housing pin as indicated in the table on page 15.

PT Find the estimated life and diameter of the DH housing, as indicated in the table on page 15.

Series	DH - Hole diameter (mm) 10	12.5	16	20	25	32	40	50	63	Estimated Life (cycles)
	Load (N)									
VL	60	110	140	220	410	485	745	1560	1290	+ 3,000,000
	80	150	185	290	540	650	1000	2120	1700	~ 1,500,000
	90	170	205	330	610	730	1120	2380	1900	300 - 500,000
	105	190	230	365	680	810	1250	2650	2150	100 - 200,000
V	70	130	185	315	560	830	1130	2320	3250	+ 3,000,000
	80	150	220	380	675	990	1360	2780	3900	~ 1,500,000
	95	180	260	440	780	1160	1590	3240	4540	300 - 500,000
	110	200	300	500	890	1320	1810	3710	5190	100 - 200,000
B	110	190	330	525	845	1520	2030	3050	5310	+ 3,000,000
	130	230	400	625	1010	1830	2430	3660	6370	~ 1,500,000
	150	255	450	705	1140	2060	2730	4120	7170	300 - 500,000
	170	280	500	780	1260	2280	3040	4580	7960	100 - 200,000
R	125	200	380	935	1560	2530	3270	4860	8440	+ 3,000,000
	155	250	480	1170	1950	3170	4090	6070	10560	~ 1,500,000
	170	275	525	1290	2140	3480	4490	6670	11610	300 - 500,000
	185	300	570	1400	2340	3800	4900	7280	12660	100 - 200,000

3

IT Check the available forces as stated in the chart on page 15.

EN

FRON Please refer to the tables on page 15.

FR Check the forces available as indicated in the table on page 15.

ES Check the available forces as indicated in the table on page 15.

PT Check the available information as indicated in the table on page 15.

Series	DH - Hole diameter (mm) 10	12.5	16	20	25	32	40	50	63	Estimated Life (cycles)
	Load (N)									
VL	60	110	140	220	410	485	745	1560	1290	+ 3,000,000
	80	150	185	290	540	650	1000	2120	1700	~ 1,500,000
	90	170	205	330	610	730	1120	2380	1900	300 - 500,000
	105	190	230	365	680	810	1250	2650	2150	100 - 200,000
V	70	130	185	315	560	830	1130	2320	3250	+ 3,000,000
	80	150	220	380	675	990	1360	2780	3900	~ 1,500,000
	95	180	260	440	780	1160	1590	3240	4540	300 - 500,000
	110	200	300	500	890	1320	1810	3710	5190	100 - 200,000
B	110	190	330	525	845	1520	2030	3050	5310	+ 3,000,000
	130	230	400	625	1010	1830	2430	3660	6370	~ 1,500,000
	150	255	450	705	1140	2060	2730	4120	7170	300 - 500,000
	170	280	500	780	1260	2280	3040	4580	7960	100 - 200,000
R	125	200	380	935	1560	2530	3270	4860	8440	+ 3,000,000
	155	250	480	1170	1950	3170	4090	6070	10560	~ 1,500,000
	170	275	525	1290	2140	3480	4490	6670	11610	300 - 500,000
	185	300	570	1400	2340	3800	4900	7280	12660	100 - 200,000

4

IT Select the required force and the corresponding series from the table on page 15.

EN Select the requested force and the corresponding Series as stated in chart at page 15.

FRON See the available items and the available series in the tables on page 15.

FR Select the required force and the corresponding series as indicated in the tableau on page 15.

ES Select the requested power and the corresponding series as indicated in the table on page 15.

PT Selection by request and corresponding series in accordance with the table on page 15.

Series	DH - Hole diameter (mm) 10	12.5	16	20	25	32	40	50	63	Estimated Life (cycles)
	Load (N)									
VL	60	110	140	220	410	485	745	1560	1290	+ 3,000,000
	80	150	185	290	540	650	1000	2120	1700	~ 1,500,000
	90	170	205	330	610	730	1120	2380	1900	300 - 500,000
	105	190	230	365	680	810	1250	2650	2150	100 - 200,000
V	70	130	185	315	560	830	1130	2320	3250	+ 3,000,000
	80	150	220	380	675	990	1360	2780	3900	~ 1,500,000
	95	180	260	440	780	1160	1590	3240	4540	300 - 500,000
	110	200	300	500	890	1320	1810	3710	5190	100 - 200,000
B	110	190	330	525	845	1520	2030	3050	5310	+ 3,000,000
	130	230	400	625	1010	1830	2430	3660	6370	~ 1,500,000
	150	255	450	705	1140	2060	2730	4120	7170	300 - 500,000
	170	280	500	780	1260	2280	3040	4580	7960	100 - 200,000
R	125	200	380	935	1560	2530	3270	4860	8440	+ 3,000,000
	155	250	480	1170	1950	3170	4090	6070	10560	~ 1,500,000
	170	275	525	1290	2140	3480	4490	6670	11610	300 - 500,000
	185	300	570	1400	2340	3800	4900	7280	12660	100 - 200,000

5

IT Select the required deflection in the selected series.

EN Choose the requested deflection in the selected Series.

FRON Wählen Sie den gewünschten Federweg in der ausgewählten Serie.

FR Choose the flexion requested in the selected series.

ES Elija the deflexion requested in the selected Series. Listen

PT to the requested deflection in the selected series.

see series page - see Series pages - see Series pages - see the series pages - see the series pages - see the series pages

Code	D_H Hole Diameter	D_d Rod Diameter	THER Free Length	Spring Rate	TO 20%THE	B 25%THE	C 27.5%THE	D 30%THE	AND approx. do not use
	bxh			± 10%	+ 3,000,000	~ 1,500,000	300 - 500,000	100 - 200,000	
	mm	mm	mm	N/mm	mm N	mm N	mm N	mm N	mm Pcs
R 50 - 064	50	25	64	413.0	12.8 5286	16.0 6608	17.6 7269	19.2 7930	22.4 5
R 50 - 076			76	339.0	15.2 5153	19.0 6441	20.9 7085	22.8 7729	26.5 5
R 50 - 089			89	288.0	17.8 5126	22.3 6422	24.5 7056	26.7 7690	31.5 5
R 50 - 102			102	245.0	20.4 4998	25.5 6248	28.1 6885	30.6 7497	37.6 5
R 50 - 115			115	215.0	23.0 4945	28.8 6192	31.6 6794	34.5 7418	42.7 5
R 50 - 127			127	192.0	25.4 4877	31.8 6106	34.9 6701	38.1 7315	47.5 5
R 50 - 139			139	168.0	27.8 4670	34.8 5846	38.2 6418	41.7 7006	51.8 5

6

IT Once the deflection is selected, select the spring code.

EN Once chosen the deflection, select the spring's code.

FRON Wenn Sie den Federweg ausgewählt haben, wählen Sie den Federcode.

FR Once you choose the flexion, select the lines of the resource thread.

ES Once again, deflexion is chosen, selecting the muelle's code.

PT Now remove the deflection, selection or code from the grinding wheel.

see series page - see Series pages - see Series pages - see the series pages - see the series pages - see the series pages

Code	D_H Hole Diameter	D_d Rod Diameter	THER Free Length	Spring Rate	TO 20%THE	B 25%THE	C 27.5%THE	D 30%THE	AND approx. do not use
	bxh			± 10%	+ 3,000,000	~ 1,500,000	300 - 500,000	100 - 200,000	
	mm	mm	mm	N/mm	mm N	mm N	mm N	mm N	mm Pcs
R 50 - 064	50	25	64	413.0	12.8 5286	16.0 6608	17.6 7269	19.2 7930	22.4 5
R 50 - 076			76	339.0	15.2 5153	19.0 6441	20.9 7085	22.8 7729	26.5 5
R 50 - 089			89	288.0	17.8 5126	22.3 6422	24.5 7056	26.7 7690	31.5 5
R 50 - 102			102	245.0	20.4 4998	25.5 6248	28.1 6885	30.6 7497	37.6 5
R 50 - 115			115	215.0	23.0 4945	28.8 6192	31.6 6794	34.5 7418	42.7 5
R 50 - 127			127	192.0	25.4 4877	31.8 6106	34.9 6701	38.1 7315	47.5 5
R 50 - 139			139	168.0	27.8 4670	34.8 5846	38.2 6418	41.7 7006	51.8 5

1 N = 0.1 daN = 0.102 kg

SELECTION DATA

▢ RECTANGULAR WIRE

Series	DH- Hole diameter (mm)									Estimated Life (cycles)
	10	12.5	16	20	25	32	40	50	63	
	Load (N)									
VL	60	110	140	220	410	485	745	1560	1290	+ 3,000,000
	80	150	185	290	540	650	1000	2120	1700	~ 1,500,000
	90	170	205	330	610	730	1120	2380	1900	300 - 500,000
	105	190	230	365	680	810	1250	2650	2150	100 - 200,000
V	70	130	185	315	560	830	1130	2320	3250	+ 3,000,000
	80	150	220	380	675	990	1360	2780	3900	~ 1,500,000
	95	180	260	440	780	1160	1590	3240	4540	300 - 500,000
	110	200	300	500	890	1320	1810	3710	5190	100 - 200,000
B	110	190	330	525	845	1520	2030	3050	5310	+ 3,000,000
	130	230	400	625	1010	1830	2430	3660	6370	~ 1,500,000
	150	255	450	705	1140	2060	2730	4120	7170	300 - 500,000
	170	280	500	780	1260	2280	3040	4580	7960	100 - 200,000
R	125	200	380	935	1560	2530	3270	4860	8440	+ 3,000,000
	155	250	480	1170	1950	3170	4090	6070	10560	~ 1,500,000
	170	275	525	1290	2140	3480	4490	6670	11610	300 - 500,000
	185	300	570	1400	2340	3800	4900	7280	12660	100 - 200,000
G	145	230	455	1090	1760	2800	4770	6820	11890	+ 3,000,000
	170	270	535	1280	2070	3290	5610	8030	13990	~ 1,500,000
	195	305	605	1440	2320	3700	6300	9020	15740	300 - 500,000
	215	340	670	1605	2585	4120	7010	10040	17330	100 - 200,000
TO	390	660	1285	1880	4090	6350	7700	12280	12130	+ 3,000,000
	470	790	1540	2260	4910	7620	9240	14730	14560	~ 1,500,000
	530	890	1730	2540	5530	8570	10400	16580	16380	300 - 500,000
	590	990	1925	2825	6140	9520	11550	18420	12800	100 - 200,000

○ ROUND WIRE

Series	DH- Hole diameter (mm)					Estimated Life (cycles)
	6.3	8.3	10	12.5	16	
	Load (N)					
TV	5	10	25	50	100	+ 3,000,000
	7	12	30	60	115	~ 1,500,000
	8	14	35	70	135	300 - 500,000
	10	15	40	80	150	100 - 200,000
TB	18	22	70	130	175	+ 3,000,000
	22	28	90	150	210	~ 1,500,000
	25	30	100	170	240	300 - 500,000
	28	35	110	190	290	100 - 200,000
TR	40	40	100	175	360	+ 3,000,000
	48	48	120	220	450	~ 1,500,000
	50	52	135	240	500	300 - 500,000
	58	58	150	260	545	100 - 200,000
TG	80	85	-	-	-	+ 3,000,000
	100	105	-	-	-	~ 1,500,000
	110	115	-	-	-	300 - 500,000
	120	125	-	-	-	100 - 200,000

IT The life values indicated in the table are obtained from internal tests and are not guaranteed due to the large number of variables in real working conditions. The method indicated for spring selection is approximate; it is always recommended to refer to the tables for selection.

EN The stated service life values are obtained from in-house reliability tests and are not guaranteed due to the impossibility to consider all variables on the real working conditions of the springs. The indicated guidelines are an approximate method for selecting the springs. It is recommended to refer to the standard tabs before using the springs.

FRO The information in the Tables is based on empirical evidence in international firms. Das angegebene Verfahren zur Auswahl der Federn dient nur als Anhaltswert. Es wird dazu geraten, die Auswahl immer anhand der Tabellen durchzuführen.

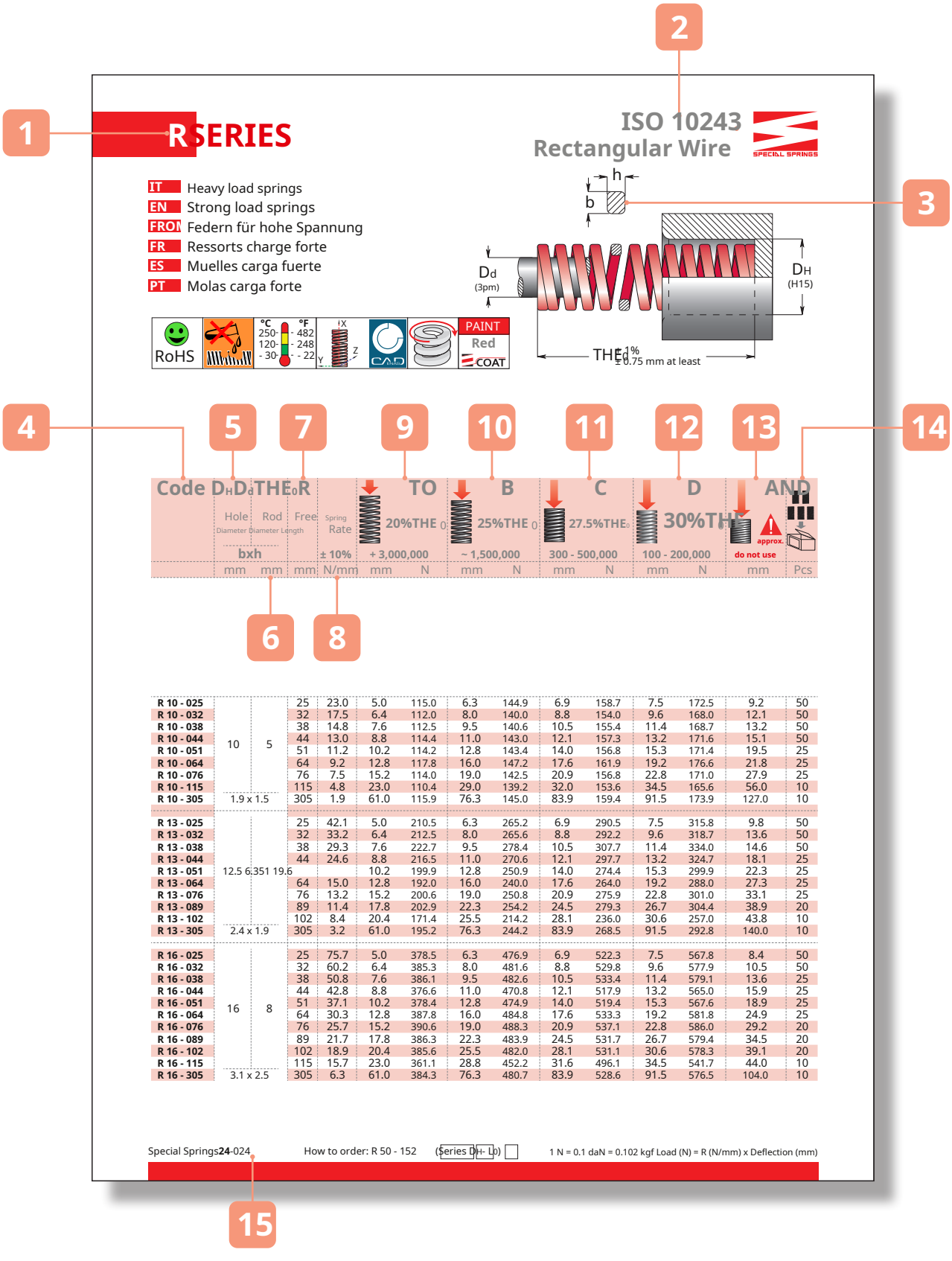
FR The duration values indicated on the table are obtained starting from internal tests which are not guaranteed due to the large number of variables in the actual working conditions. The indicated method for selecting resources is indicative, our advice to you is to refer to the tables for selection.

ES The durability values indicated in the table are obtained through internal tests and are not guaranteed due to the high number of variables in the actual working conditions. The method indicated for the selection of the muelles is approximate, so we advise you to always refer to the tables for the selection.

PT The durability values indicated on the table are obligated by internal tests and are not guaranteed due to the high number of variations in real working conditions. The method indicated for selecting the grinding wheels is approximate, please always refer to the tables for selection.

HOW TO READ THE CATALOG

SAMPLE PAGE



1 N = 0.1 daN = 0.102 kg

HOW TO READ THE CATALOG

1
Series
Series
Series
Series
Series
Series

2
Standard
Standards
Standards
Standards
Standards
Padrões

3
Profile section
Cross-wire section
Profilquerschnitt
Section du profilé
Sección del perfil
Seção do perfil

4
Code
Code
Order number
Reference
Code
Code

5
Housing hole diameter

Außenführungsdurchmesser
Diamètre du trou de logement
Diameter of the housing pin
Diameter of the housing shaft

6
Rod diameter

Innenführungdurchmesser
Diamètre de l'arbre de guidege
Diamètre de la clavija di diametro
Diamètre da tomada de guide

7
Spring free length

Longitude of the unbelasteten Feder
Free length of the resource Free length of the wheel Compression of the grinding wheel

8
Load (N/mm) required to deflect the spring by 1mm
Spring rate (N/mm) - load required for 1mm deflection
Kraftzunahme (N/mm) für 1 mm gefragt pro
Charge (N/mm) required to compress the resource 1mm
Charge (N/mm) necessary to compress the wheel 1mm
Charge (N/mm) necessary to deflate the 1mm grinding wheel

9
Advised total working deflection for more than 3,000,000 cycles

Empfohlener Gesamtfederweg für eine Lebensdauer der Feder von mehr als 3,000,000 Zyklen
Total deflexion recommended for a duration of the resource exceeding 3,000,000 cycles Total deflexion advised for a duration of the wheel exceeding 3,000,000 of cycles Total deflexion recommended for grinding wheel life exceeding 3,000,000 cycles

10
Advised total working deflection for about 1,500,000 cycles

Empfohlener Gesamtfederweg für eine Lebensdauer der Feder für eine durchschnittliche Lebensdauer von 1,500,000 Zyklen Total
Déflexion recommended for a duration of the environmental resource 1,500,000 cycles
Total deflexion recommended for a wheel duration of approximately 1,500,000 cycles Total deflexion recommended for grinding wheel duration of approximately 1,500,000 cycles

11
Advised total working deflection for about 300,000 - 500,000 cycles

Empfohlener Gesamtfederweg für eine Lebensdauer der Feder von ca. 300.0000 to 500.000 Zyklen Total
deflexion recommended for a duration of environmental resource 300.000 – 500.000 cycles
Total deflexion advised for a grinding wheel duration of approximately 300,000 - 500,000 cycles Total deflexion advised for grinding wheel duration of approximately 300,000 - 500,000 cycles

12
Recommended total working deflection for approximately 100,000–200,000 cycles. Do not exceed this value.

Maximaler Gesamtfederweg für eine Lebensdauer der Feder von ca. 100,000 to 200,000 Zyklen. Maximum total deflection for a duration of 100,000 – 200,000 cycles. Don't forget this maximum total deflection value for a cycle duration of approximately 100,000 - 200,000 cycles. You must not exceed this maximum total deflection value for grinding wheel life of 100,000 - 200,000 cycles. Don't exceed this value

13
Approximate deflection for spring to block
Solid deflection (approximate value)
Näherungswert Federweg für Blockfeder
Déflexion approximative pour ressort à bloc
Deflexion close to the block
Approximate deflection by block grinding wheel

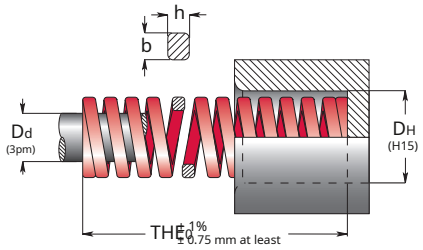
For design information only

14
Number of pieces per package
Quantity for standard packaging
Stück pro Packung
Number of pieces per box
Number of pieces per package
Number of pieces per package

15
Page review index

Index of the Seiteüberprufung
Index of review of page Index of review of page Index of review of page

LEGEND



THEo
Free length of the spring. The tolerance* of L0 is ± 1%, with a minimum of ± 0.75 mm;
Spring free length. The tolerance* of L0 is ± 1%, with a minimum of ± 0.75 mm;
Länge der unbelasteten Feder. The tolerance* of L0 is ± 1 %, with a minimum of ± 0.75 mm;
Free lounge at the resort. The tolerance* of L0 is ± 1%, with a minimum of ± 0.75 mm;
Free length of the muelle. The tolerance* of L0 is ± 1%, with a minimum of ± 0.75 mm;
Grinding wheel compression. The tolerance* of L0 is ± 1%, with a minimum of ± 0.75 mm;

*Not valid for "L" and "T" Series

Dd
Rod diameter

Innenführungdurchmesser
Diamètre de l'arbre de guidege
Diamètre de la clavija di diametro
Diamètre da tomada de guide

DH
Housing hole diameter

Außenführungsdurchmesser
Diamètre du trou de logement
Diameter of the housing pin Diameter of the housing shaft

1 N = 0.1 daN = 0.102 kg