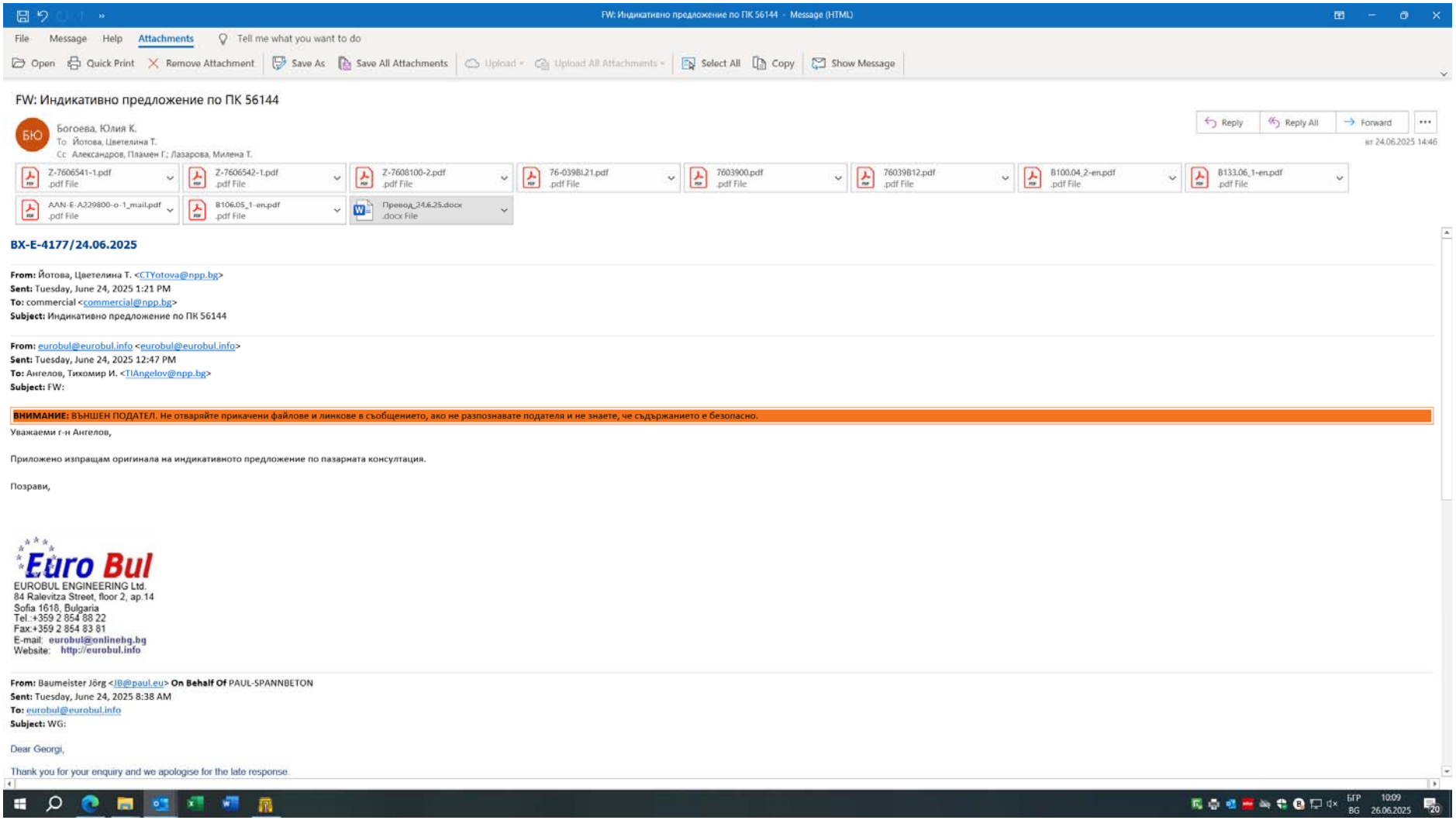
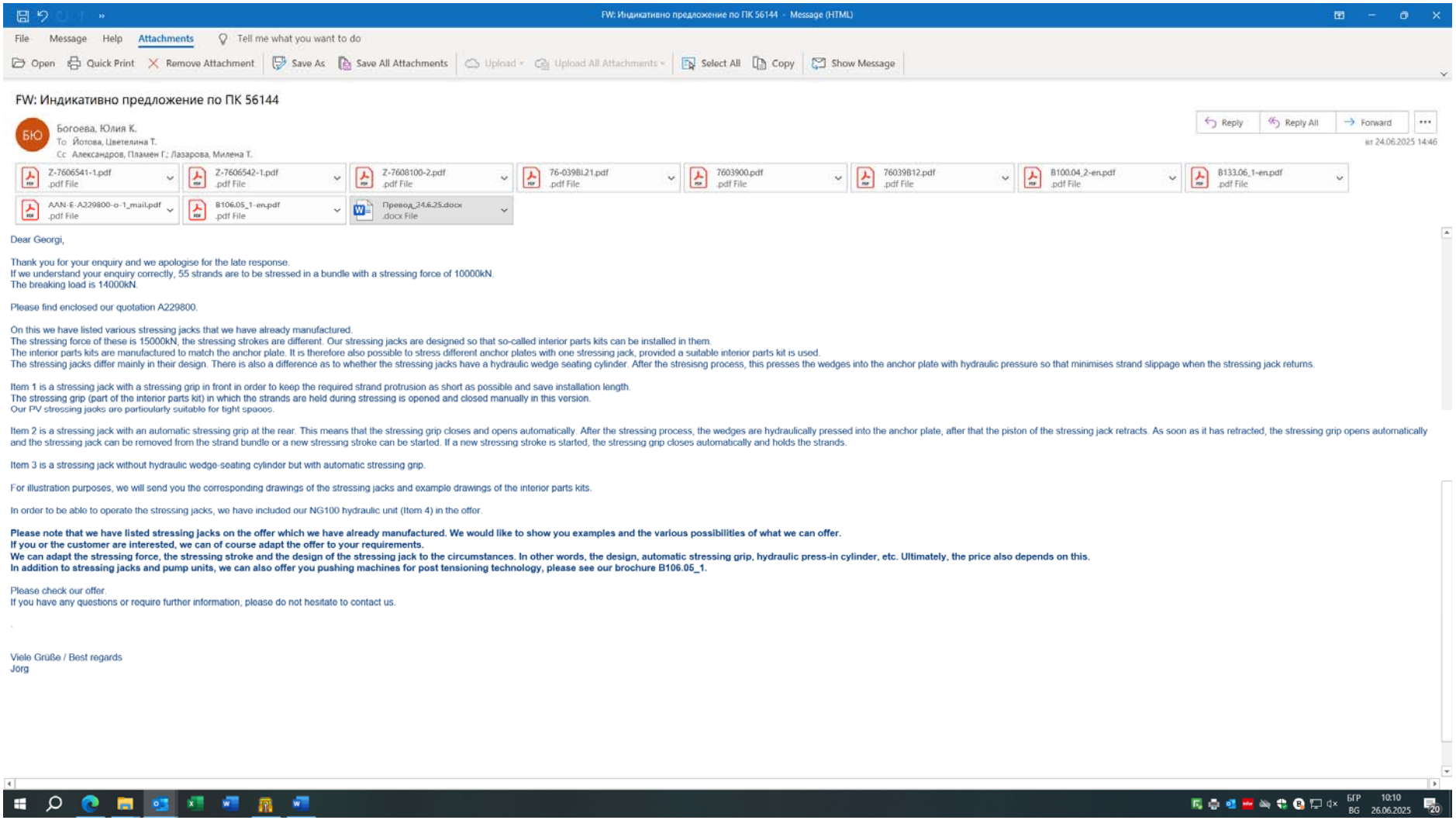

FW: Индикативно предложение по ПК 56144 - Message (HTML)
File Message Help Attachments Tell me what you want to do
Open Quick Print Remove Attachment Save As Save All Attachments Upload Upload All Attachments Select All Copy Show Message
FW: Индикативно предложение по ПК 56144
Богоева, Юлия К.
To Йотова, Цветелина Т.
Cc Александров, Пламен Г.; Лазарова, Милена Т.
Reply Reply All Forward
вт 24.06.2025 14:46
Z-7606541-1.pdf .pdf File
Z-7606542-1.pdf .pdf File
Z-7608100-2.pdf .pdf File
76-039BL21.pdf .pdf File
7603900.pdf .pdf File
76039B12.pdf .pdf File
B100.04_2-en.pdf .pdf File
B133.06_1-en.pdf .pdf File
AAN-E-A229800-o-1_mail.pdf .pdf File
B106.05_1-en.pdf .pdf File
Превод_24.6.25.docx .docx File
BX-E-4177/24.06.2025
From: Йотова, Цветелина Т. <CTYotova@npp.bg>
Sent: Tuesday, June 24, 2025 1:21 PM
To: commercial <commercial@npp.bg>
Subject: Индикативно предложение по ПК 56144
From: eurobul@eurobul.info <eurobul@eurobul.info>
Sent: Tuesday, June 24, 2025 12:47 PM
To: Ангелов, Тихомир И. <TIAngelov@npp.bg>
Subject: FW:
ВНИМАНИЕ: ВЪНШЕН ПОДАТЕЛ. Не отваряйте прикачени файлове и линкове в съобщението, ако не разпознавате подателя и не знаете, че съдържанието е безопасно.
Уважаеми г-н Ангелов,
Приложено изпращам оригинала на индикативното предложение по пазарната консултация.
Позрави,
Euro Bul
EUROBUL ENGINEERING Ltd.
84 Ralevitza Street, floor 2, ap.14
Sofia 1618, Bulgaria
Tel.:+359 2 854 88 22
Fax:+359 2 854 83 81
E-mail: eurobul@onlinebg.bg
Website: http://eurobul.info
From: Baumeister Jörg <JB@paul.eu> On Behalf Of PAUL-SPANNBETON
Sent: Tuesday, June 24, 2025 8:38 AM
To: eurobul@eurobul.info
Subject: WG:
Dear Georgi,
Thank you for your enquiry and we apologise for the late response.
БГР BG 10:09 26.06.2025


FW: Индикативно предложение по ПК 56144 - Message (HTML)
File Message Help Attachments Tell me what you want to do
Open Quick Print Remove Attachment Save As Save All Attachments Upload Upload All Attachments Select All Copy Show Message
FW: Индикативно предложение по ПК 56144
Богоева, Юлия К.
To Йотова, Цветелина Т.
Cc Александров, Пламен Г.; Лазарова, Милена Т.
Reply Reply All Forward
вт 24.06.2025 14:46
Z-7606541-1.pdf .pdf File
Z-7606542-1.pdf .pdf File
Z-7608100-2.pdf .pdf File
76-039B121.pdf .pdf File
7603900.pdf .pdf File
76039B12.pdf .pdf File
B100.04_2-en.pdf .pdf File
B133.06_1-en.pdf .pdf File
AAN-E-A229800-o-1_mail.pdf .pdf File
B106.05_1-en.pdf .pdf File
Превод_24.6.25.docx .docx File
Dear Georgi,
Thank you for your enquiry and we apologise for the late response.
If we understand your enquiry correctly, 55 strands are to be stressed in a bundle with a stressing force of 10000kN.
The breaking load is 14000kN.
Please find enclosed our quotation A229800.
On this we have listed various stressing jacks that we have already manufactured.
The stressing force of these is 15000kN, the stressing strokes are different. Our stressing jacks are designed so that so-called interior parts kits can be installed in them.
The interior parts kits are manufactured to match the anchor plate. It is therefore also possible to stress different anchor plates with one stressing jack, provided a suitable interior parts kit is used.
The stressing jacks differ mainly in their design. There is also a difference as to whether the stressing jacks have a hydraulic wedge seating cylinder. After the stresisng process, this presses the wedges into the anchor plate with hydraulic pressure so that minimises strand slippage when the stressing jack returns.
Item 1 is a stressing jack with a stressing grip in front in order to keep the required strand protrusion as short as possible and save installation length.
The stressing grip (part of the interior parts kit) in which the strands are held during stressing is opened and closed manually in this version.
Our PV stressing jacks are partioularly suitable for tight spaoes.
Item 2 is a stressing jack with an automatic stressing grip at the rear. This means that the stressing grip closes and opens automatically. After the stressing process, the wedges are hydraulically pressed into the anchor plate, after that the piston of the stressing jack retracts. As soon as it has retracted, the stressing grip opens automatically and the stressing jack can be removed from the strand bundle or a new stressing stroke can be started. If a new stressing stroke is started, the stressing grip closes automatically and holds the strands.
Item 3 is a stressing jack without hydraulic wedge-seating cylinder but with automatic stressing grip.
For illustration purposes, we will send you the corresponding drawings of the stressing jacks and example drawings of the interior parts kits.
In order to be able to operate the stressing jacks, we have included our NG100 hydraulic unit (Item 4) in the offer.
Please note that we have listed stressing jacks on the offer which we have already manufactured. We would like to show you examples and the various possibilities of what we can offer.
If you or the customer are interested, we can of course adapt the offer to your requirements.
We can adapt the stressing force, the stressing stroke and the design of the stressing jack to the circumstances. In other words, the design, automatic stressing grip, hydraulic press-in cylinder, etc. Ultimately, the price also depends on this.
In addition to stressing jacks and pump units, we can also offer you pushing machines for post tensioning technology, please see our brochure B106.05_1.
Please check our offer.
If you have any questions or require further information, please do not hesitate to contact us.
Viele Grüße / Best regards
Jörg
БГР BG 10:10 26.06.2025 20

Paul Maschinenfabrik GmbH & Co. KG • Max-Paul-Str. 1 • 88525 Dürmentingen

QUOTATION: **A229800**
Client ref. 11697
Date: 23.06.2025
Ref: JB
Mail: spannbeton@paul.eu

EUROBUL ENGINEERING Ltd.
84 Ralevitza Street,
floor 2, ap.14
1618 SOFIA
BULGARIA

Your inquiry dated June, 20th 2025

Delivery: approx. 7-8 months plus transport

Dear Georgi,

We thank you for your inquiry and are pleased to quote you without obligation and based on our enclosed Conditions of Sale:

Qty.	Designation	Ref. No.		@ EURO	EURO
	Item 1 **Stressing jack TENSA M PV 15000kN** **with stressing stroke 200mm** **equipped with interior parts kit** **and hydraulic wedge seating device** **for stressing 55*0,62" strands** comprising:				
1	STRESS.JACK TENSA M15000KN/200 - max. permissible stressing pressure 600 bar - stressing stroke 200 mm - center hole 268 mm - weight without oil approx. 1700 kg - without wedge-seating device - without hydraulic connection couplings - with suspension device	76-065.40	15%	68280.00	58038.00
1	HYDR. WEDGE SEATING DEV. 63.9KN	76-065.41	15%	11400.00	9690.00
1	INTERIOR PARTS KIT 55*0.62" similar to 76-065.42		15%	15210.00	12928.50
1	SET OF HYDR. COUPLINGS 700 BAR ND 10 (stressing/retraction/wedge-seating) incl. DKS 16 M24*1.5 connection	77-134.28	15%	269.00	228.65
	Sub total				**80885.15**
	Item 2 **Stressing jack TENSA M 15000kN**				

Paul Maschinenfabrik GmbH & Co. KG
Max-Paul-Str. 1 ☎ +49 7371 500-0 info@paul.eu **Kreissparkasse Biberach** **BIC: SBCR DE 66 XXX** **IBAN: DE51 6545 0070 0000 4005 83**
88525 Dürmentingen 🖷 +49 7371 500-111 www.paul.eu Deutsche Bank Ulm BIC: DEUT DE SS 630 IBAN: DE45 6307 0088 0207 0555 00
Deutschland/Germany

	with stressing stroke 500mm **equipped with interior parts kit** **and hydraulic wedge seating device** **for stressing 55*0,62" strands** comprising:					
1	TENSA M 15000KN STRESSING JACK Stressing stroke 500mm Wedge seating stroke 60mm inner diameter 420mm Weight approx. 4690kg	76-039.00	15%	101995.00	86695.75
1	INTERIOR PARTS KIT 55*0.62" similar to 76-039.90		15%	32410.00	27548.50
1	SET OF HYDR. COUPLINGS 700 BAR ND 10 (stressing/retraction/wedge-seating) incl. DKS 16 M24*1.5 connection	77-134.28	15%	269.00	228.65
	Sub total				**114472.90**
	Item 3 **Stressing jack TENSA M PV 15000kN** **with stressing stroke 1000mm** **equipped with interior parts kit** **for stressing 55*0,62" strands** **(without hydraulic wedge seating device)** comprising:					
1	STRESSING JACK 15000KN,1000MM STR. Inner diameter 350mm Without wedge seating device Weight approx. 5450kg	76-081.00	15%	135000.00	114750.00
1	REMOV. CROSS BEAM 15000KN,COMPL.	76-081.16	15%	3420.00	2907.00
1	INTERIOR PARTS KIT 55*0.62" similar to 76-081.20		15%	27450.00	23332.50
1	SET OF HYDR. COUPLINGS 700 BAR ND 10 (stressing/retraction/wedge-seating) incl. DKS 16 M24*1.5 connection	77-134.28	15%	269.00	228.65
	Sub total				**141218.15**
	Item 4 **Hydraulic pump unit NG100 type 77-220.00** **with high-pressure pump 5.8/11.6 l/min.** comprising:					
1	HYDRAULIC PUMP UNIT	77-220.00	15%	6780.00	5763.00

- Manual control via 5/4-port directional control valve
- Functions: Stressing-Neutral-Wedge-seating-Retraction-Fine pressure release

Paul Maschinenfabrik GmbH & Co. KG
Max-Paul-Str. 1 ☎ +49 7371 500-0 info@paul.eu **Kreissparkasse Biberach** **BIC: SBCR DE 66 XXX** **IBAN: DE51 6545 0070 0000 4005 83**
88525 Dürmentingen 🖷 +49 7371 500-111 www.paul.eu Deutsche Bank Ulm BIC: DEUT DE SS 630 IBAN: DE45 6307 0088 0207 0555 00
Deutschland/Germany

- Mobile
- Pmax. up to 700 bar (acc. to pump/motor)
- Qmax. up to 11.6 l/min. (acc. to pump/motor)
- Tank content approx. 100 l, useful oil capacity approx. 50 l

1	HP PUMP 5.8/11.6L/MIN. Pmax. 600 bar	78-089.00	15%	2790.00	2371.50
1	MOTOR GROUP 9.2KW 400V 50HZ	77-184.00	15%	3030.00	2575.50
1	SET OF HYDRAULIC COUPLINGS PN 700 bar	77-134.40	15%	279.00	237.15
1	CONNECTION CABLE 0.7M / 32A 32 A Cekon plug connected, coupling detached	77-168.47	15%	98.90	84.07
3	HP HOSE, ND 10*5000 PN 700	13-070.21	15%	489.00	1246.95
	Sub total				**12278.17**

Price: FCA Max-Paul-Str. 1, 88525 Dürmentingen, Germany (Incoterms 2020), without Packing. EURO: **348854.37**

Payment: By bank transfer prior to dispatch.
We request payment - stating order number and client reference - to:
Kreissparkasse Biberach,
BIC SBCRDE66, IBAN DE51 6545 0070 0000 4005 83

All deliveries and services are subject exclusively to our enclosed General Terms of Business. If not on hand, they can any time be seen at https://paul.eu/agb. Furthermore they are subject exclusively to our enclosed Terms for Installation which will be gladly sent to you if not on hand.

Yours faithfully
Paul Maschinenfabrik GmbH & Co. KG
i.A. Jörg Baumeister

Urlaub/Vacation/Vacances 09.08.2025 - 24.08.2025

I hereby order bindingly according to the present offer.

_____

Place, Date Buyer's signature

Paul Maschinenfabrik GmbH & Co. KG
Max-Paul-Str. 1 ☎ +49 7371 500-0 info@paul.eu **Kreissparkasse Biberach** **BIC: SBCR DE 66 XXX** **IBAN: DE51 6545 0070 0000 4005 83**
88525 Dürmentingen 🖷 +49 7371 500-111 www.paul.eu Deutsche Bank Ulm BIC: DEUT DE SS 630 IBAN: DE45 6307 0088 0207 0555 00
Deutschland/Germany
USt-IdNr. DE146544409 • Kommanditgesellschaft, Sitz Dürmentingen, Registergericht Ulm HRA 650073
Persönlich haftende Gesellschafterin: Paul Maschinenfabrik GmbH, Sitz Dürmentingen, Registergericht Ulm HRB 650013, GF: Barbara Hering, Alexander Paul, Maximilian Paul

Уважаеми Георги,

Благодарим Ви за запитването и се извиняваме за закъснелия отговор.
Ако правилно разбираме запитването Ви, 55 нишки трябва да бъдат натоварени в сноп със сила на натоварване 10000 kN.
Разрушаващото натоварване е 14000 kN.

Прилагаме нашата оферта A229800
В този списък сме посочили различни напрягащи крикове, които вече сме произвели.
Силата на натиск при тях е 15 000 kN, а ходовете на натиск са различни. Нашите напрягащи крикове са проектирани така, че в тях да могат да се монтират така наречените комплекти с вътрешни части.
Комплектите с вътрешни части се произвеждат така, че да съответстват на анкерната плоча. Следователно е възможно да се напрягат различни анкерни плочи с един напрягащ крик, при условие че се използва подходящ комплект вътрешни части.
Напречните гнезда се различават главно по своята конструкция. Разликата е и в това, дали напрягащите крикове имат хидравличен цилиндър за закрепване на клина. След процеса на напрягане той притиска клиновете в анкерната плоча с хидравлично налягане, така че да се сведе до минимум приплъзването на нишките при връщането на напрягащия механизъм.

Позиция 1 е напрягащ гнездо с напрягаща ръкохватка отпред, за да се запази необходимата изпъкналост на нишката възможно най-кратка и да се спести монтажна дължина.
При тази версия захватът за напрягане (част от комплекта вътрешни части), в който се държат нишките по време на напрягането, се отваря и затваря ръчно.
Нашите клещи за напрягане на фотоволтаици са особено подходящи за тесни пространства.

Позиция 2 е стрелкова дръжка с автоматична стрелкова дръжка отзад. Това означава, че дръжката за напрягане се затваря и отваря автоматично. След процеса на напрягане клиновете се притискат хидравлично в анкерната плоча, след което буталото на повдигача за напрягане се прибира. Веднага след като се прибере, захватът за напрягане се отваря автоматично и повдигачът за напрягане може да се извади от снопа нишки или да се започне нов ход на напрягане. Ако се започне нов ход на напрягане, захващането за напрягане се затваря автоматично и задържа нишките.

Позиция 3 е повдигач за напрягане без хидравличен цилиндър за поставяне на клинове, но с автоматичен захват за напрягане.

С цел илюстрация ще ви изпратим съответните чертежи на напрягащите крикове и примерни чертежи на комплектите с вътрешни части.

За да можете да управлявате напрягащите крикове, сме включили в офертата нашия хидравличен агрегат NG100 (позиция 4).

Моля, обърнете внимание, че в офертата сме посочили стресови крикове, които вече сме произвели. Бихме искали да ви покажем примери и различни възможности за това, което можем да предложим.
Ако вие или клиентът проявите интерес, разбира се, можем да адаптираме офертата към вашите изисквания.
Можем да адаптираме силата на напрягане, хода на напрягане и конструкцията на гнездото за напрягане към обстоятелствата. С други думи, дизайнът, автоматичният захват за напрягане, хидравличният цилиндър за притискане и др. В крайна сметка от това зависи и цената.

В допълнение към криковете за напрягане и помпените агрегати можем да ви предложим и машини за избутване за технологията за последващо напрягане, моля, вижте нашата брошура B106.05_1.

Моля, проверете нашата оферта.

Ако имате някакви въпроси или се нуждаете от допълнителна информация, моля, не се колебайте да се свържете с нас.

Viele Grüße / Най-добри пожелания
Jörg

General Terms and Conditions for Deliveries and Services of Paul Maschinenfabrik GmbH & Co. KG

2018

Applicable law

All deliveries and services are subject to German law, in particular to the respectively valid version of the Civil Code, Commercial Code, Copyright Act, Product Liability Law, and the EU machinery directive. However, these General Terms and Conditions and any deviating provisions laid down in our order acknowledgement shall take precedence, provided they are permissible in keeping with German law. Deviating general terms and conditions of our contractual partners or verbal agreements shall not form part of the contractual content, unless we agree to their validity in writing. The application of UN Sales Law is excluded.

Technical execution

In all services we shall keep to the respectively applicable state of the art as a minimum.

Technical alterations and alterations in shape, colour and/or weight shall be subject to change within reason and in particular within the scope of technical improvements.

Technical documentations in German and English are included in quotations and order acknowledgements free of charge. Additional translations into other languages will be charged to the contractual party at cost.

Our products are developed and manufactured according to customer specification. Data and pictures in advertising and information material of whatever kind are not binding. The data and descriptions in our customer-specific quotations and in our order acknowledgements are exclusively relevant for the execution and condition of our products. Verbal sub-agreements and assurances of our staff or representatives shall require our written confirmation to be legally effective.

Delivery deadlines

Delivery deadlines shall only be binding provided they are marked as such in our order acknowledgement. They shall be considered guide times, which may be exceeded by up to six weeks.

A delivery deadline agreed upon shall be extended reasonably in the event of delays for which our contractual partner is responsible, in particular in the event of payment default or delays in providing necessary technical clarification.

Retention of title

We shall retain title to the delivery items in all legally possible forms until payment in full of all receivables arising out of a current business relationship.

Our contractual partner undertakes to treat the goods with due care and to regularly undertake necessary maintenance and inspection work at its own expense.

Our contractual partner shall be obligated to prevent access to the delivery items by third parties, e.g. through distraint, to immediately inform us of any access by third parties and to properly insure the delivery items.

In the event of an application for the institution of insolvency proceedings or of payment default of more than eight weeks, the contractual partner shall be obligated to return the delivery items.

Our contractual partner shall be entitled to resell the goods during the normal course of business. It shall however then assign to us all debts due to it from a third party in the amount of the invoice arising from the sale.

We reserve the right to collect the debt assigned to us ourselves, if our contractual partner falls into persistent payment arrears.

Our contractual partner further undertakes to secure the retention of title in our favour even after the goods are resold, and to this end to take the measures necessary under the applicable national law in each case.

If the goods are processed with items that do not belong to us, then we shall acquire joint ownership to the new object in the ratio of the value of the items delivered by ourselves to the other items processed.

Our contractual partner shall not be entitled to pledge the goods that are subject to reservation of ownership or to transfer their ownership by way of security.

Use of software

Our contractual partner shall receive a non-exclusive usage right in the software contained in the scope of delivery, limited to the operation of the system. This software must neither be modified, nor decompiled, nor copied, nor must rights or information be passed on third parties. The granting of sub-licences shall not be permitted. The source code is our sole intellectual property.

Prices and payment

Unless otherwise agreed, the prices shall be “ex works, excluding packaging”.

The payment terms shall be set out in the order acknowledgement.

If cash discount has been agreed upon, the corresponding deduction shall be allowed exclusively from the final payment, and only if all payments have been made within the deadlines agreed upon, and the contractual partner is not in arrears with other payments.

Our contractual partner shall only have a right of setoff provided its counterclaims have already been finally and absolutely approved or have been accepted by us. The contractual partner may only exercise a right of retention provided its counterclaim is based on the same contractual relationship.

If our contractual partner is in default in payment, then we shall have a right of retention of the services we are required to provide.

If our contractual partner does not meet its obligations within a reasonable period we have set, we shall be permitted to withdraw from the contract and to request flat-rate damage compensation to the amount of 25 per cent of the purchase price. The compensation for damages shall be increased or lowered if our contractual partner proves a lower damage or we can prove a higher damage.

Passing of risk

The risk of accidental loss and accidental deterioration of the delivery items shall transfer when they are delivered to the carrier. This shall apply even if our contractual service obligation includes the installation and commissioning of the delivery items at the contractual partner’s premises and/or we are required to bear the freight costs.

The transfer or delivery shall be deemed to have taken place even if our contractual partner is in default of acceptance.

Acceptance

Each of the contractual parties may require formal acceptance of the service to take place. Acceptance may not be refused in the event that minor defects should exist.

If no formal acceptance has taken place, although we have set the contractual partner a reasonable period of acceptance after completion of the work, our services shall be deemed to be accepted two months after use by our contractual partner, at the latest, however, three months after delivery to our contractual partner, unless our contractual partner has refused acceptance within this period stating at least one defect.

The obligation of our contractual partner to immediately inform us about defects after receipt of the service shall remain unaffected even if our contractual partner is not identical with the user.

Tools required up to the completion of commissioning and the acceptance of our products (such as circular saw blades, prestressing steel, sleeper moulds and anchor plates) and test materials (such as wood or other material to be processed) shall be rendered available free of charge free domicile in the requested quantity by our contractual partner, unless any deviating agreement has been concluded in an individual case. This shall apply also for potentially required rework.

Warranty

We shall provide warranty for defects in our services by rework or by making a replacement delivery, at our choice.

The warranty period for new goods shall be twelve months as from acceptance of the service. However, we shall retain the right to agree on shorter warranty periods if the goods are used in multiple-shift operation by concluding individual agreements.

Second-hand goods shall be supplied with the exclusion of any warranty.

Our contractual partner undertakes to co-operate to a reasonable extent when faults are being sought and when replacement parts are being fitted. Replaced parts shall become our property and are to be returned to us upon request.

If our warranty obligation consists in the replacement of a part or in the execution of work which requires no specialist knowledge as provided by our staff, there shall be no right to fulfilment by our staff.

Our contractual partner shall bear the entire burden of proof for all claim prerequisites, in particular for the defect itself, for the time at which the defect was discovered and the timeliness of the notice of defect.

If the contractual partner chooses to withdraw from the contract due to a material defect after subsequent fulfilment has failed, it shall not be additionally due any claim for damages due to defects.

If the contractual partner claims damages after failed subsequent fulfilment, the said shall accept the service nonetheless, if he can reasonably be expected to do so. The damages payment shall in this case be restricted to the difference between the purchase price and the value of the defective item. This shall not apply if we have maliciously committed the breach of contract.

In the absence of any other agreement, our warranty obligation shall be restricted in geographical terms to the registered office of the contractual partner.

If we are not commissioned with the installation and commissioning, then a charge shall in any event be made the first time a fitter is sent to the place of use.

The observation of performance specifications shall not be warranted a hundred per cent, because performance deviations of up to twenty per cent may occur for different reasons under production conditions at our contractual partner.

Restrictions of liability

The basis and amount of the damage, which has been caused by culpable default on our side, shall have to be proven by the contractual partner. Our contractual and extra-contractual liability shall be limited to intent or gross negligence, provided it is not a violation of an essential contractual obligation or the injury to life, physical injury or damage to health. The same shall apply to the liability of our vicarious agents. The liability in conformity with the German Product Liability Law shall remain unaffected hereof. The amount of our liability shall be limited as follows:

- In total, our liability shall be limited to a maximum of 15 per cent of the net contract value.

  The liability for delay in delivery shall be limited to 0.5 per cent for each full week of delay, maximum to 5 per cent of the net contract value, however.

- All claims of the contractual partner - with the exception of such caused by intent or gross negligence or due to the injury to life, physical injury or damage to health - shall become time-barred twelve months after the transfer of risk.

- We shall not be held liable for pecuniary losses caused by the loss of production and loss of profits, for example.

Contract manufacture

No liability for quality processing shall be assumed for faults which can be traced back to bad, unsuitable or unknown material quality. Processing, repair or restoration of second-hand parts shall also be included in the exclusion of liability.

We shall not provide any compensation for any processing-related rejects, change of shape, impairment of dimensional accuracy and accuracy of fit, loss, damage etc., unless there is intentional or grossly negligent cause on our side. In this case, the contractual partner is eligible to compensation of the value at our option. All our calculations shall be based exclusively on the services ordered by the customer and to be provided by us. The value of the parts processed is not known to us. Compensation of damage of any kind and no matter on which legal basis shall be limited to the amount of our net work wage claim (net contract value). We shall not assume any liability for risks unknown to us in type and amount. If the contractual partner requests additional securities, which are based on the part value, for example, we shall be informed about its value and the full scope of the risk to be covered by us before processing the parts. If and when necessary, agreements have to be concluded on risk limitation, which we have to confirm in writing.

Final provisions

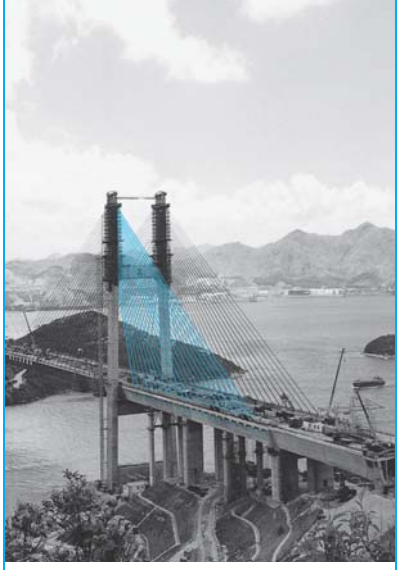
The contractual language shall be German or English. This shall be evident from the order acknowledgement.

The place of jurisdiction shall be our company headquarters.

If individual provisions of the contract with our contractual partner, including these General Terms of Business, should be or become fully or partially invalid, this shall not affect the validity of the remaining provisions. If this should be the case, the contractual parties shall be obliged to replace the fully or partially invalid rule by a valid rule that comes as close as possible to the economic meaning of the invalid provision.

On conclusion of contract, these General Terms and Conditions and the Terms for Installation of Paul Maschinenfabrik GmbH & Co. KG shall solely apply.

PRESTRESSED
CONCRETE
TECHNOLOGY



Pushing Machines for Post-Tensioning Applications

Hydraulic pushing machine with strand unwinding from the coil

Maschinenfabrik GmbH & Co. KG

Purpose

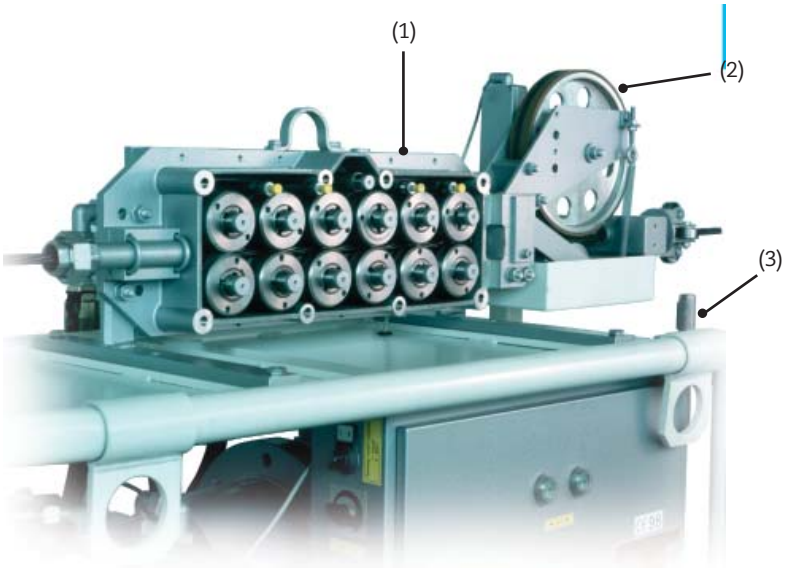
Tried and tested over decades

PAUL strand pushing machines have proved themselves in building site applications all over the world for decades. The pushing machines are supplied with electrical or hydraulic drives. The drive head consists of a basic compact aluminium body with either four or six pairs of driven rollers. For electrical operation the machine is mostly used with four pairs of rollers for a maximum pushing length of approx. 100 m.

Because of this the machine is ideal for the manufacture of single-span beams, floors, tanks etc. The hydraulically driven pushing machine with six pairs of rollers is suitable for the insertion of strands of maximum lengths of 200 to 300 m and is therefore ideal for bridge building.

The hydraulically driven pushing machine is generally supplied with a length counter and a large, spring-supported measuring wheel (2). In combination with a PAUL NCS-control, insertion is carried out accurately to the programmed length. The electrically driven machine is usually operated by an electrical remote control.
As an option, however, a simple length counter can be supplied for the electrically driven machine.

In order to dismantle the drive rollers it is only necessary to remove the cover of the pushing machine (1). For retightening purposes or for converting to a different strand diameter, the drive rollers are slipped over the mounting device (3) and then they can be tightened or dismantled with a hook wrench.



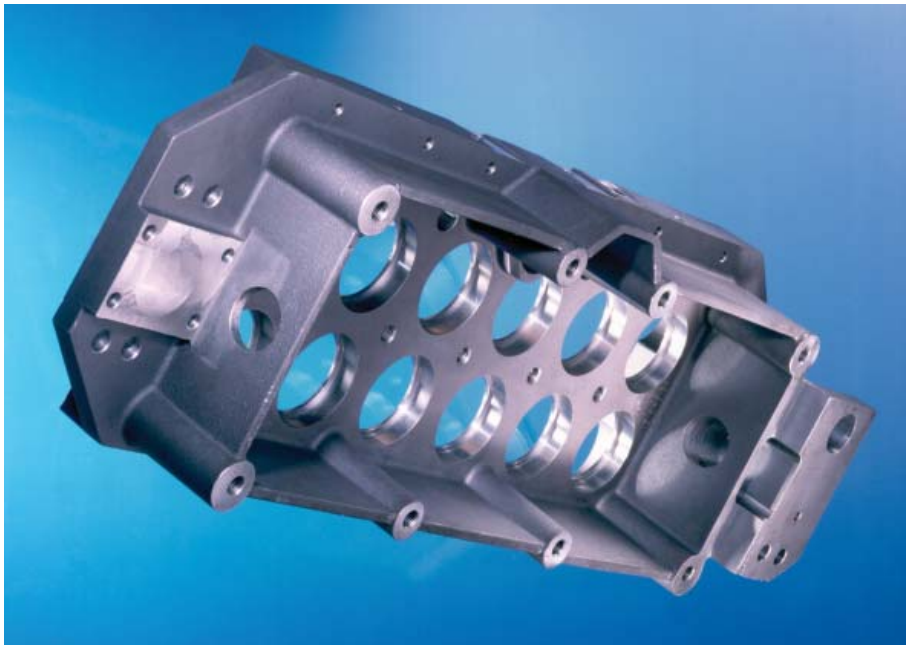
Force measuring and mounting device

Hydraulic pushing machine on pump unit: Insertion into post-tensioning ducts using a flexible strand guide.

Drive rollers

The machine has 8 or 12 driven rollers which are seated on axles and can be exchanged quickly for example when changing the diameter of the prestressing steel. Housing and cover are made from lightweight aluminium. When pushing PE-coated strands the drive rollers can be fitted with plastic or rubber rings and when bright steel strands are inserted then steel rings are used.

	Type 1	Type 2	Type 3
Drive rollers with ...	Plastic ring	Rubber ring	Steel ring
Use:	Mainly for coated strands	Mainly for coated strands	For bright steel strands (ear protectors necessary)
Characteristics:	Protects the strands and is silent	Protects the strands and is silent	Wear-resistant, high service life
Capacity:	Max. 1000 m/h (top capacity 2 m/s)	Medium capacity	High capacity
Max. pushing force:	Approx. 3 kN (with 6 pairs of rollers)	Approx. 3 kN (with 6 pairs of rollers)	Approx. 5 kN (with 6 pairs of rollers)

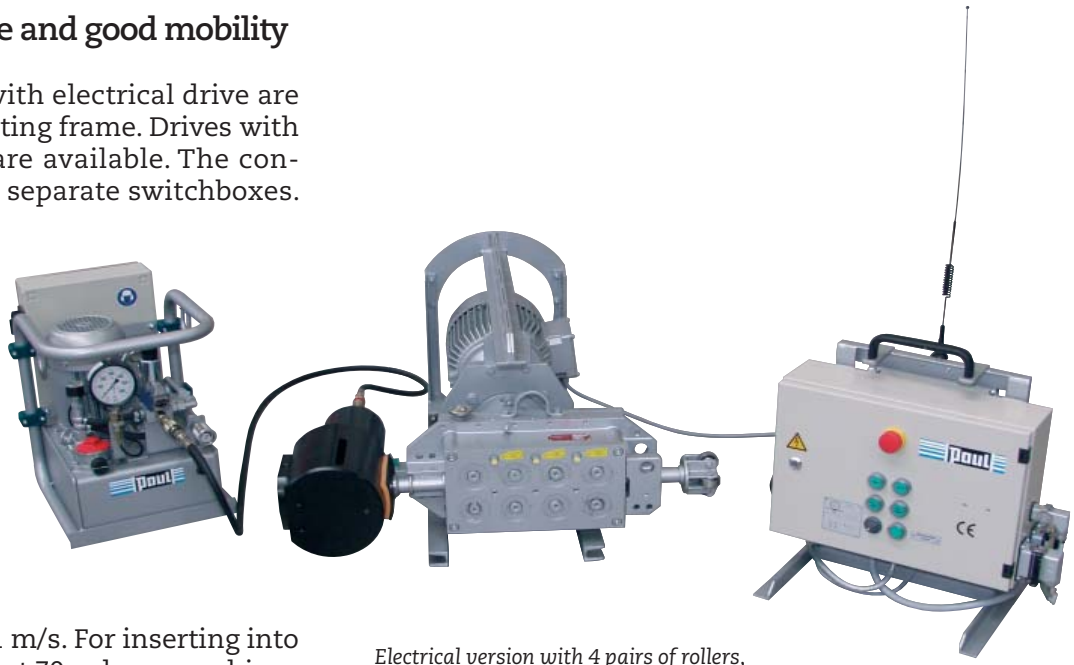


The base body of the pushing machine is made of lightweight cast aluminium.

Electrical version

High pushing force and good mobility

Pushing machines with electrical drive are installed in a supporting frame. Drives with one or two speeds are available. The controls are installed in separate switchboxes. A range of control units is available for drives with either one or two speeds as well as for length counting operation. For insertion into tanks, drives are frequently selected with one or two speeds for a maximum pushing speed of 0.25 to 1 m/s. For inserting into cable ducts up to about 70 m long, machines are used with a drive power of 3 kW operating at about 2.4 m/s. For cable duct lengths up to about 100 m, 4.5 kW machines are used with a speed of 3.4 m/s (see price list for sample quotations).



Electrical version with 4 pairs of rollers, radio control, 300 kN hydraulic cutter, NG15 mini pump unit

Radio control transmitter

Cable-free version

The maximum ease of operation is offered by a radio-operated remote control which is in Europe free of registration and taxes and works within a frequency range of 433-434 MHz.

The transmitter, which is the size of a mobile phone, weight 270 g, ensures the greatest mobility and can also withstand the rough usage on the building site.

In addition the high-performance transmitting and receiving equipment provides optimum and constant radio communication even over greater distances.
The range of the radio unit with at least 80 m, is so great that the operator can be positioned at a great distance from the machine so that he can monitor the pushing operation (see brochure B 106.18/1).

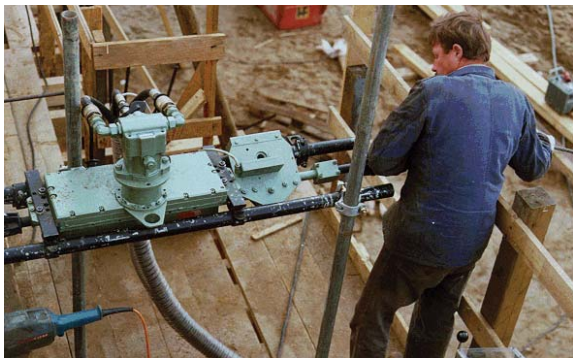
Paul Maschinenfabrik GmbH & Co. KG

Hydraulic version

Simple and flexible operation

The pushing machine is driven by a hydraulic motor which is flange-mounted on the side of the drive head. For generating the pressure a mobile hydraulic unit is used which is fitted with a low-noise variable displacement pump. The variable displacement pump has a delivery capacity of 80 l/min.
The large-volume, car-sized pneumatic tyres make transport easy over the uneven ground on building sites. The parking brake ensures safe and stable stopping even on sloping ground.
The strand is led to the tendon through flexible hoses or tubes from the pushing machine which is mounted on the cover of the hydraulic unit. The operator can fill the tendon by using the remote control without any additional help.
Thanks to its weight-saving design, the pushing machine can be mounted directly on the tendon in certain applications, for which it is then necessary to install hoses from the hydraulic unit to the pushing machine (e.g. when inserting strands into stay cables if there is little space available).

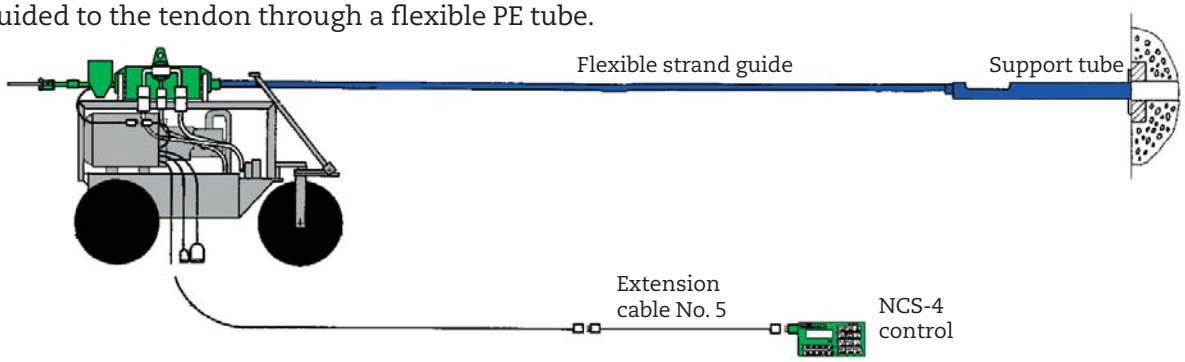
In both cases – positioning of the pushing machine on the hydraulic unit or on the tendon – the operator can stand at a position from where the inserting process is easy to monitor or where the strands have to be cut to length or threaded in. The portable NCS controls always ensure the maximum freedom of movement.



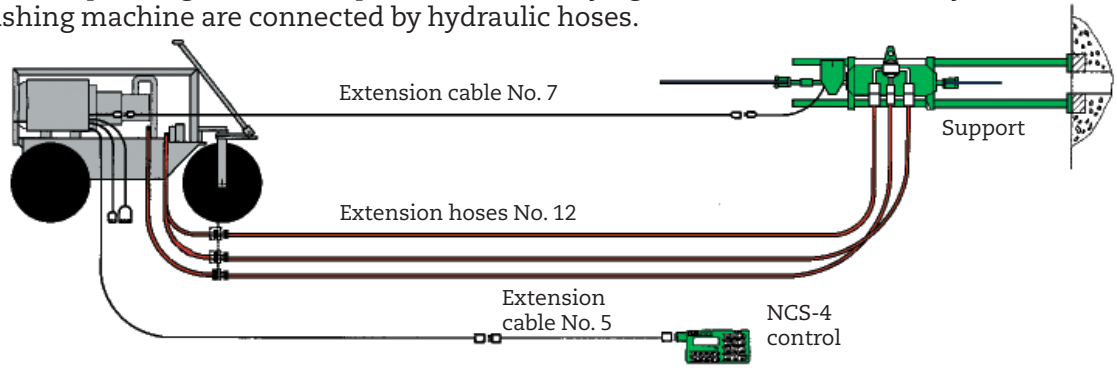
Connected to the hydraulic unit by hydraulic hoses the pushing machine works directly at the prestressing tendon.

Flexible use

In this example the pushing machine can be mounted on the hydraulic unit. The strand is guided to the tendon through a flexible PE tube.



Optional the pushing machine is positioned directly against the tendon. The hydraulic unit and pushing machine are connected by hydraulic hoses.



Hydraulic version

The control unit

The NCS-4 control that has proved successful for many years is connected by a cable to the electrical equipment on the mobile hydraulic unit. The cable transmits the measuring signals from the length counter and the control signals to the variable displacement pump. The NCS-4 control is very light and user-friendly – allowing pushing work to be carried out and monitored by just one person. The electrical equipment on the pump unit is additionally fitted with a manual control so that in special circumstances the work can be carried out even without the NCS-4 control.

The portable NCS-4 control

The newly developed NCS-5 control eliminates the need for a cable connection. Both the measuring signals from the length counter and the control signals to the variable displacement pump are transmitted by radio. The keypad and the method of operation are identical to that of the NCS-4 control.

In Europe the NCS-5 control is free of registration and taxes and works within a frequency range of 433.15-434.75 MHz. The range of the radio unit is approx. 70-200 meters (depending on environment). The software has been designed for site operation only. It includes a strand slippage monitoring function to stop the feed drive as soon as the length counter stops transmitting measuring signals during operation. This avoids damage being done to sensitive PE-coated strands.

Dimensions and weight of transmitter incl. antenna: 160 x 60 x 285 mm
1 kg
Degree of protection: IP65

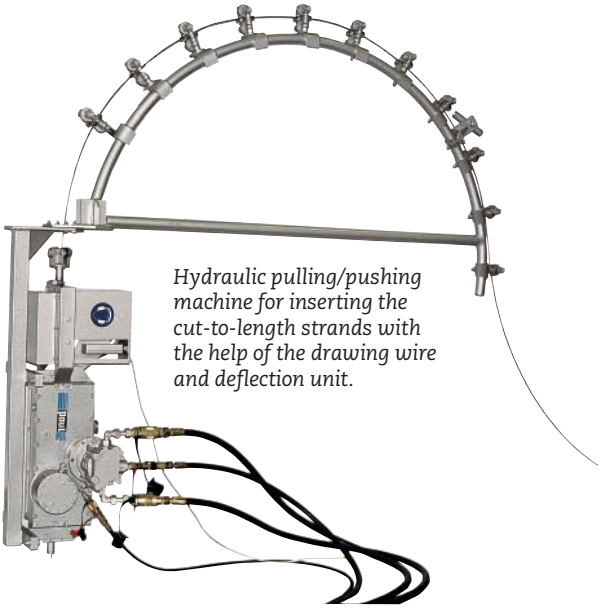
Existing pushing machines with NCS-4 control can easily be converted to radio control. The NCS-4 control is just removed from the connection cable and replaced by the radio receiver. The receiver is fastened to a bracket on the machine hood. That's it! The radio control comes with a second set of batteries including charger so that always fresh batteries are available. The transmitter can also be connected directly to the charger.

The NCS-5 control

Both control types have a robust, water-tight housing with an integrated LCD display. Via the keypad the required pushing length and speed as well as the parameters for acceleration, deceleration, counting pulses etc. are transmitted to the control. The NCS-4 control is primarily used for manufacturing the tendons in the factory. It is available with software for different operating modes for the tendon production (input of lists of lengths/numbers of strands to be pushed).

The insertion of stay cables

The hydraulically driven pushing machine with mechanical parking brake is used for inserting strands into stay cable ducts. The pulling/pushing unit is thereby usually mounted in the pylon and a pulling wire is moved backwards and forwards in the stay cable duct (for more details, see brochure 'Stressing of Stay cables' B 149.03/2).
There is an additional hydraulic hose required leading to the parking brake.



Hydraulic pulling/pushing machine for inserting the cut-to-length strands with the help of the drawing wire and deflection unit.

Hydraulic version

Motor P (kW)	n (rpm)	V_1 (m/s)	p_1 (bar)	F_1 (N)*	p_2 (bar)	V_2 (m/s)	F_2 (N)*	Max. appr. pushing length (m)**	Weight (kg) X1
11	1500	4.5	130	1700	250	2.5	3100	150	56 kg (8 drive rollers)
15	3000	9	90	1200	250	3.4	3100	150	
22	3000	9	130	1700	250	5.0	3100	250	68 kg (12 drive rollers)
30	3000	9	180	2300	250	6.8	3100	300	

Electrical version

Motor P (kW)	n (rpm)	V_1 (m/s)	p_1 (bar)	F_1 (N)*	p_2 (bar)	V_2 (m/s)	F_2 (N)*	Max. appr. pushing length (m)**	Weight (kg) X2
1.5	65	0.25		4800				70	110
3.0	254	1.0		2400					113
1.4/1.8	65/133	0.25/0.5		4500/2900					96
0.5/3.0	101/633	0.4/2.4		1000/1000					110
0.55/4.5	142/854	0.6/3.4		700/1000				100	176
1.0/4.0	57/228	0.25/1.0		3200/3200					166

V_1: Max. speed

F_1: Respective pushing force

Only for hydraulic version:

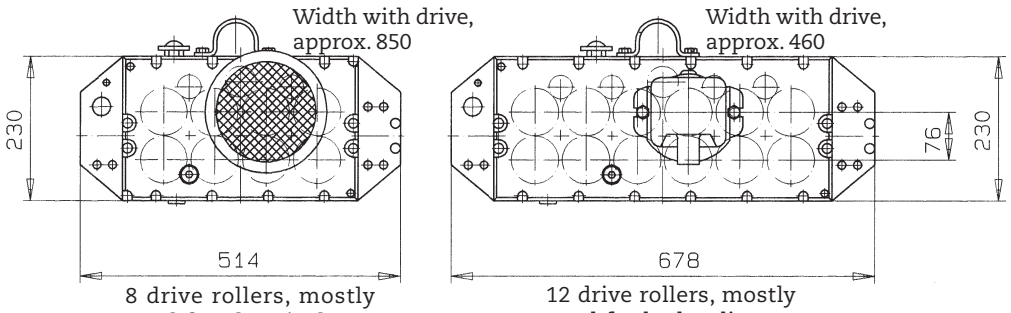
p_1: Respective hydraulic pressure for V_1
p_2: Max. hydraulic system pressure
V_2: Respective speed for p_2
F_2: Respective pushing force for p_2

X1: Pushing machine (drive head) with drive rollers and hydraulic drive
X2: Pushing machine (drive head) with 8 drive rollers, drive and supporting frame

* At max. speed V_1, neither p_1 nor F_1 must be exceeded and at max. pressure neither p_2 nor V_2 must be exceeded (motor overload)
Pushing force $F \sim P \times c / V$ c ~ 0.7 (hydraulic version)
c ~ 0.8 (electrical version)

** Depending on cable duct gradient, duct stiffness and total angle of friction

Pushing machine (drive head)



8 drive rollers, mostly used for electrical version

12 drive rollers, mostly used for hydraulic version

Max. pushing force (sliding force) ***

	Plastic (N)	Steel (N)
8 drive rollers	2000	3300
12 drive rollers	3000	5000

*** depending upon strand purity level

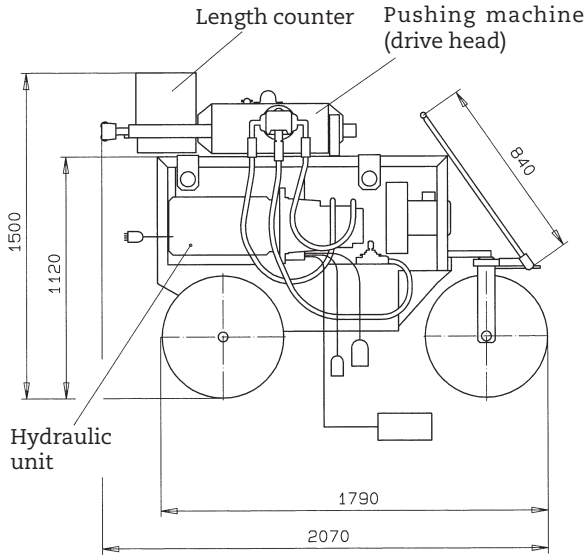
Hydraulic version

Pump delivery capacity 28 cm³/rev.

Displacement volume of hydr. motor 35 cm³/rev.

Characteristic value approx. 0.54 Nm/bar

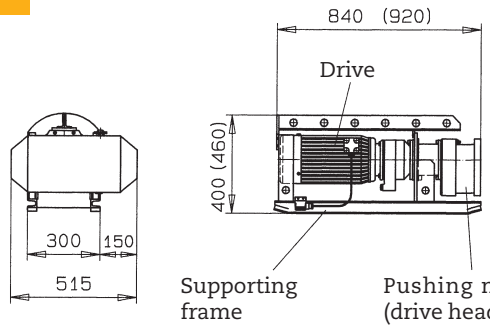
Total weight with hydraulic oil approx. 760 kg (with 22 kW)
approx. 830 kg (with 30 kW)



Dimensions

L x W x H (in mm) = 2070 x 820 x 1500

Electrical version



Dimensions for drives up to 3.0 kW
Dimensions in brackets for 4.5 kW drive

Maschinenfabrik GmbH & Co. KG

Max-Paul-Straße 1
Phone: +49 (0) 73 71 / 500-0
Mail: stressing@paul.eu

88525 Dürmentingen / Germany
Fax: +49 (0) 73 71 / 500-111
Web: www.paul.eu

Hydraulic Pump Unit Type 77-220.00

Maschinenfabrik GmbH & Co. KG

The hydraulic pump unit type 77-220.00 is suitable for the operation of all TENSA M stressing jacks (see brochure B 143.29/1).

It can also be used in conjunction with:

- Two-hose stressing jacks (brochure B 141.20/1)
- TENSA SM 240 kN stressing jack and TENSA 220 kN overstressing jack (brochure B 143.26/1)
- 300 kN twin stressing jacks (brochure B 141.23/1)
- Stressing jacks with hydraulic stressing grip if an additional control block is fitted.

Control is effected manually by means of a 5/4-way directional control valve.

Functions

Stressing
Pulling the prestressing wire/strand. The stressing pressure is infinitely variable between 0-650 bar.

Zero position
The stressing pressure is maintained. The pump returns the oil under no pressure to the tank.

Wedge-seating/lock-off
Seating of the anchor wedges within their tapered holes. The wedge seating pressure can be infinitely varied between 0-450 bar.

Retraction
The retracting pressure is adjustable between 0-200 bar.

Fine pressure release
An additional valve provides for releasing the stressing pressure, e.g. to detension an overstressed wire/strand.

Technical Data

Drive	Three-phase motor, 1500 rpm for output and supply voltage, see Ordering Data “Motor group“
Pump	High-pressure radial-piston pump
Working pressure	max. 650 bar
Control	Manual with 5/4-way directional control valve, Functions: SP - 0 - V - R - fine pressure release * Pressure gauge connections M 16 x 2
Oil filling	See sheet B 541.01/2, total oil capacity approx. 90 l, useful oil capacity approx. 50 l
Dimensions (approx.)	1400 mm x 700 mm x 1080 mm (L x W x H) Wheel dia. 400 mm Weight 220 kg (without oil filling)
Manometer	600 bar, class 1.0

* *stressing (SP) - zero position (0) - wedge seating (V) - retraction (R)*

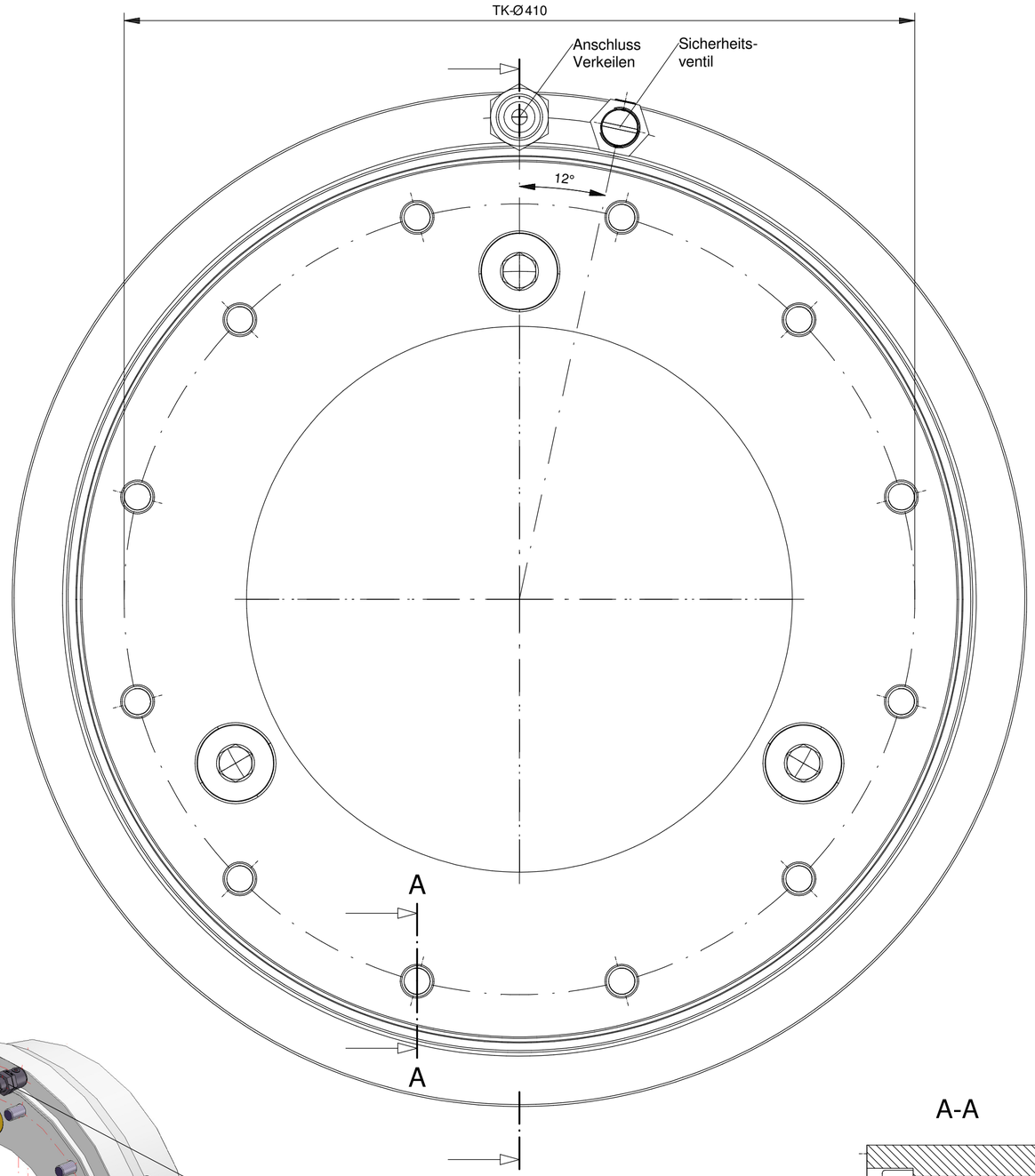
Ordering Data

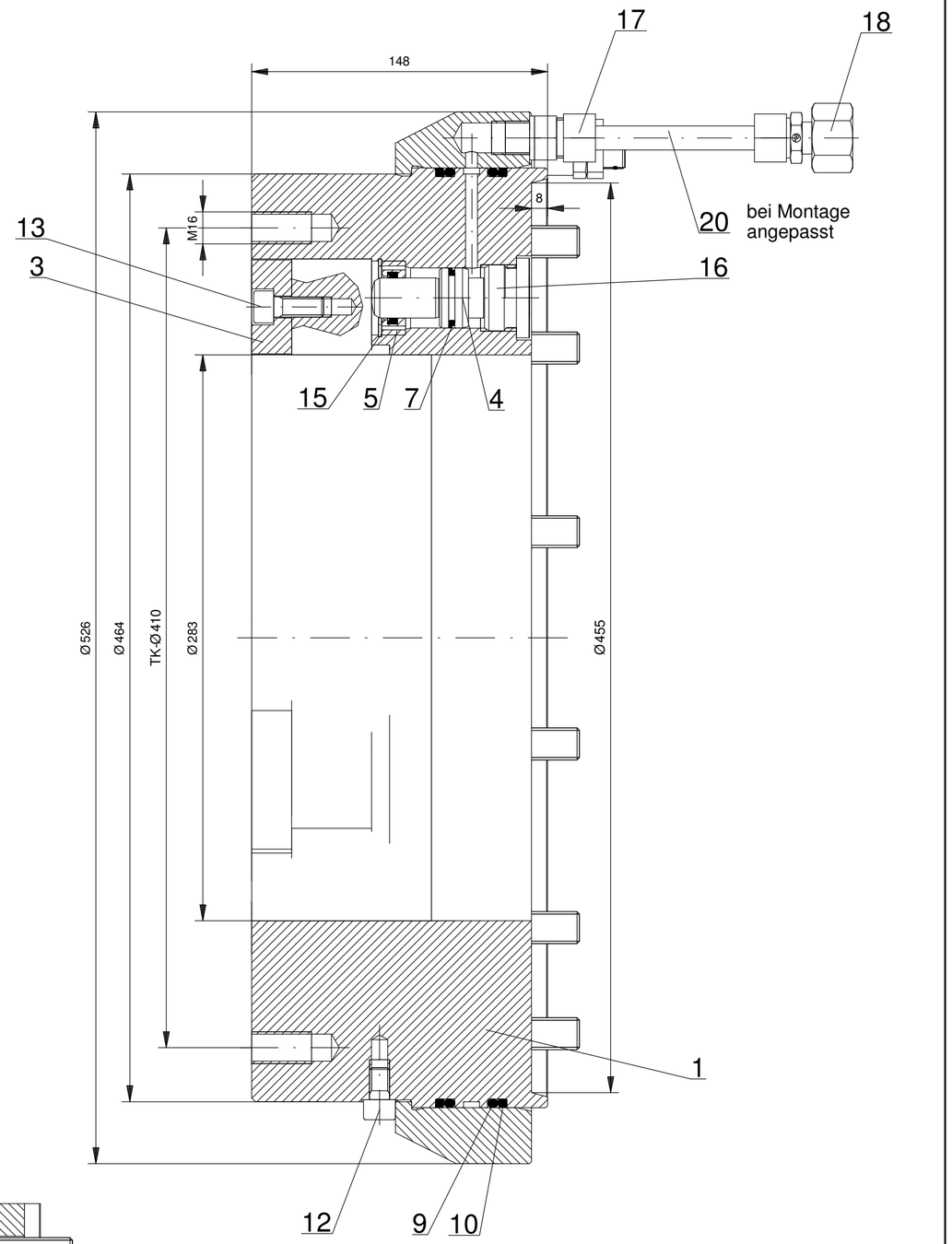
			Order No.
Basic unit	(see circuit diagram 77-211 Bl. 22)		**77-220.00**
High-pressure pump	Delivery flow	5.8 / 11.6 l/min (manual change-over) 3.7 / 7.4 l/min (manual change-over) 7.4 l/min	**78-089.00** **78-090.00** **78-090.10**
Motor group (tropicalized)	400 V 50 Hz 7.5 kW (motor 400 / 690 V, 50 Hz) 346 V 50 Hz 7.5 kW (motor 346 V, 50 Hz, delta) 208 V 60 Hz 7.5 kW (motor 208 V, 60 Hz, delta) 460 V ± 10% 60 Hz 9.0 kW * (motor 230 / 400 V +/- 10%, 50 Hz, 7.5 kW and 230 / 460 V +/- 10%, 60 Hz, 9.0 kW, 100% duty cycle) 400 V 50 Hz 9.2 kW (motor 400 / 660 V, 50 Hz for 5.8/11.6 l/min) * This motor can be connected on the terminal board for the voltages indicated! It is then also necessary to replace the protective motor switch insert! for 230 V 50 Hz (24-37 A) for 230 V 60 Hz (24-37 A) for 400 V 50 Hz (17.3-25 A) for 460 V 60 Hz (17.3-25 A)		**77-168.00** **77-168.01** **77-168.02** **77-168.03** **77-184.00** **24-267.08** **24-267.09** **24-266.23** **24-266.19**
Spare parts kit	“medium“ for basic unit and high-pressure pump “ample“ for basic unit and high-pressure pump for Motor group 400 V 50 Hz for Motor group 400 V 50 Hz **9.2 kW** for Motor group 460 V 60 Hz		**77-220.02** **77-220.03** **77-168.07** **77-168.08** **77-168.09**
Set of hydraulic couplings	PN 500 bar, ND 8 (1 x stressing socket SVM 3/8“, 1 x wedge-seating socket T 3/8“, 1 x retraction socket T 1/2“) PN 700 bar, ND 8 (1 x stressing plug P 3010-3 3/8“, 1 x wedge-seating socket P 3050-3 3/8“, 1 x retraction socket P 3050-3 3/8“)		**77-134.39** **77-134.40**
Connection cable	0.7 m long, with 32 Amp Cekon power plug and coupling 10.0 m long, with 32 Amp Cekon power plug (without coupling)		**77-168.05** **77-168.06**
Test pressure gauge	600 bar, 160 dia., with storage case and measuring hose for M 16 x 2 x 1 m		**77-179.00**
Pneumatic tyres	(instead of Ø 400 solid rubber tyres)		**77-138.12**
Hydraulic hoses	PN 700, ND 10	5 m 10 m Different lengths on inquiry.	**13-070.21** **13-070.28**

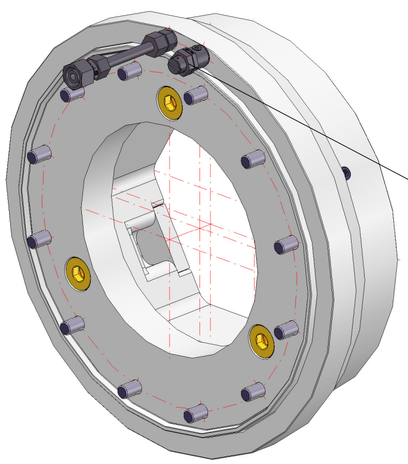
Maschinenfabrik GmbH & Co. KG

Max-Paul-Straße 1
Phone: +49 (0) 73 71 / 500-0
Mail: stressing@paul.eu

88525 Dürmentingen / Germany
Fax: +49 (0) 73 71 / 500-111
Web: www.paul.eu

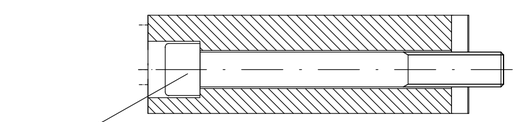






10-440 bar
Sicherheitsventil,
eingestellt auf 320 bar
Pressure relief valve,
set to 320 bar

A-A



Technische Daten:	
Betriebsdruck max. zul. Verkeilen *Max. permissible pressure for wedge seating*	300 bar (=63,9 kN)
Kolbenfläche Verkeilen *Piston area wedge seating*	21,3 cm² (3x7,1 cm²)
Verkeilhub *Wedge seating stroke*	15 mm

Allgemeintoleranz DIN ISO 2768-1 mittel

	Datum	Name
Bearb.	17.07.15	JB
Gesp.		
Gepr.		

Index	Änderung	Datum	Name

Gewicht: ca. 131kg

Rohmaß/Werkstoff/DIN

Hydr. Verkeileinrichtung 63.9kN

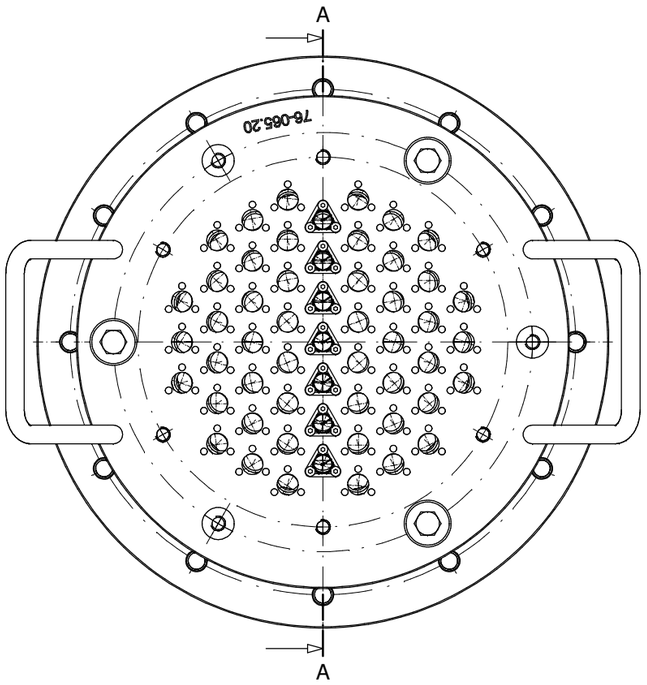
an TENSA M 15000kN

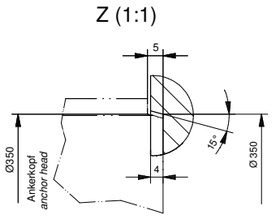
Zeichnungsnr.: 76-065.41

Maßstab: 1:2

Blatt B1

Ers.für:





A-A

Raster 33
hole spacing 33

Achtung:
Zum Aufschieben der Spannpresse auf das zu spannende Spannglied den Hub der Klemmlöseplatte Pos.2 durch Verstellen der Verstellmutter Pos.4 begrenzen.

Attention:
For applying the stressing jack onto the tendon to be stressed limit the stroke of the releasing plate item 2 by adjusting the hexagon nut item 4.

Konusbohrungen und Klemmbacken mit Molybdändisulfid einfetten
(siehe Blatt B441.20/1+2 und B246.01/1-4)
Klemmbacken siehe Blatt 83-601Bl.1

Grease taper holes and clamping jaws with molybdenum disulphide (see sheet B441.20/1+2 and B246.01/1-4) For clamping jaws, see sheet 83-601Bl.1

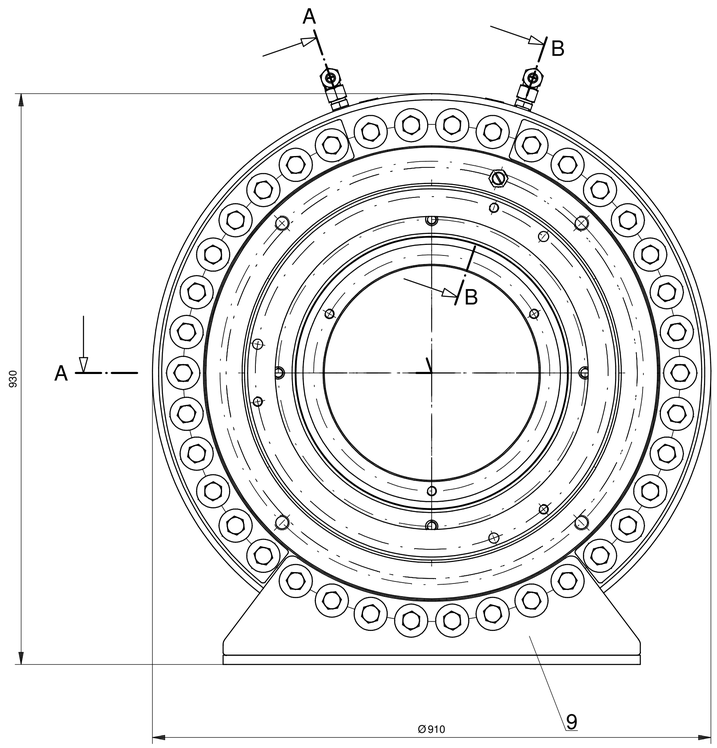
Ankerkopf 55x0,62"
hexagonale Litzenanordnung 32mm
anchor head 55 x 0,62"
hexagonal strand pattern 32 mm

Druckbeanspruchung an der Kontaktfläche
Max. Überspannkraft 0,95xF $p_{0,1k}$
= 12854kN
Kontaktfläche = ø350 x ø268 = 39800 mm²
Druckbeanspruchung = 323N/mm²
compressive stress at the contact surface
*max. overstressing force 0,95*F $p_{0,1k}$*
= 12854kN
contact area = ø350 x ø268 = 39800 mm²
compressive stress = 323N/mm²

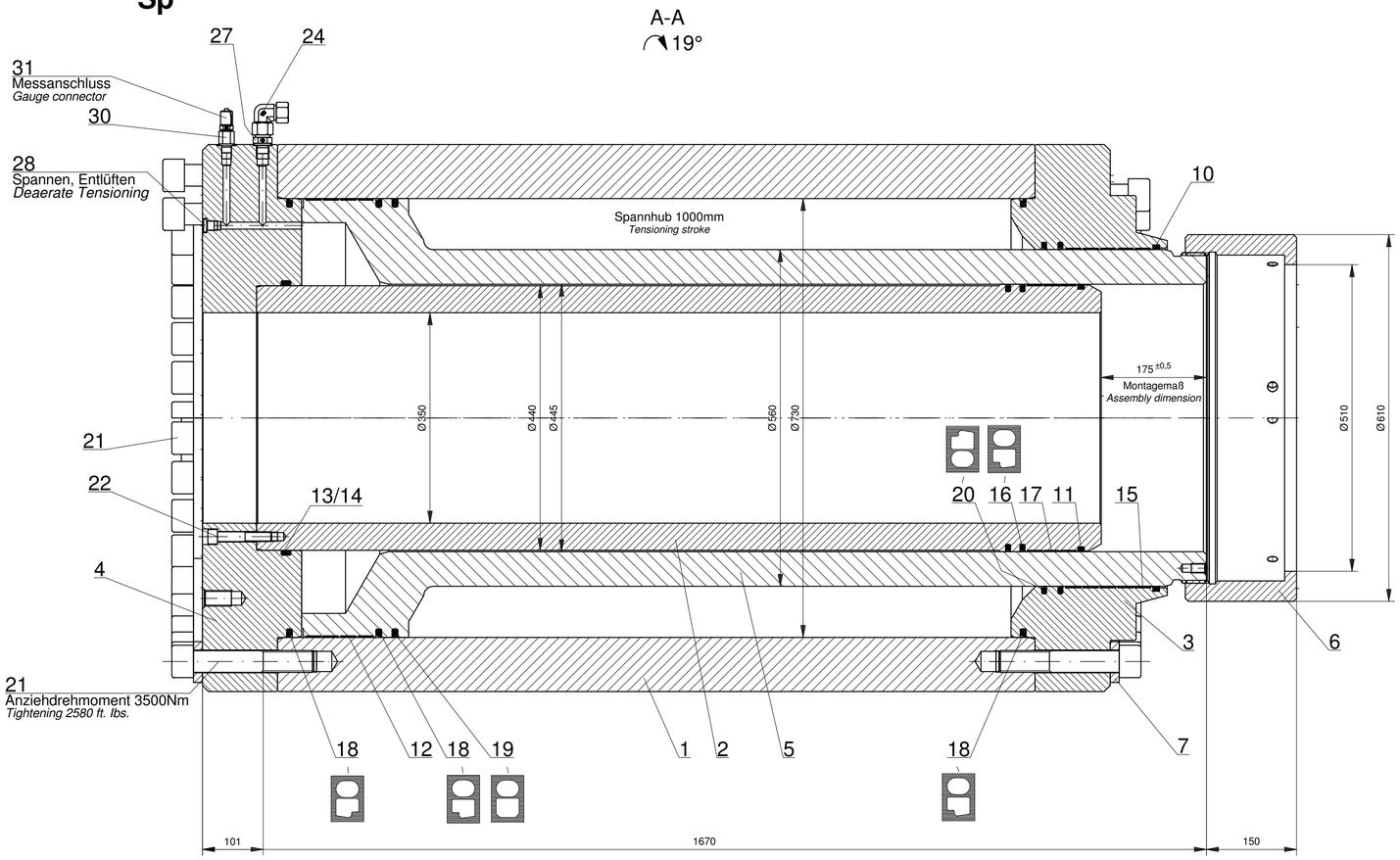
Interior parts kit 55x0,62"
hole spacing 32/33
TENSA M 15 000

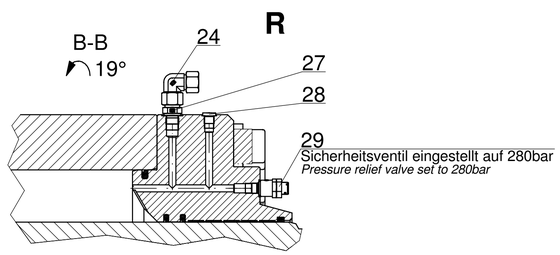
max. zulässige Spannkraft 13 000kN
max. permissible stressing force 13 000kN

Allgemeintoleranz: DIN ISO 2768-1 mittel			Gewicht:
	Datum	Name	Rohmaß/Werkstoff/DIN
Bearb.	22.07.2015	VM	Wechselteilsatz 55x0.62"
Gesp.			Raster 32/33 TENSA M 15 000
Gepr.			
PAUL			Zeichnungsnr.: 76-065.42 · Maßstab: ----- · Blatt Bl
Index	Änderung	Datum	Name · Ers.für:

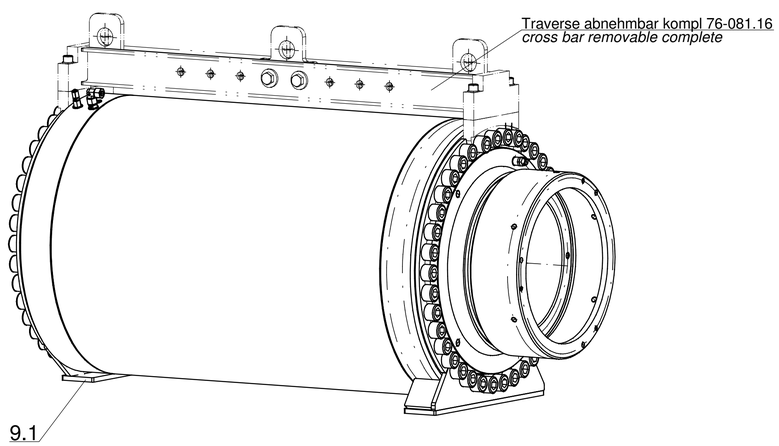


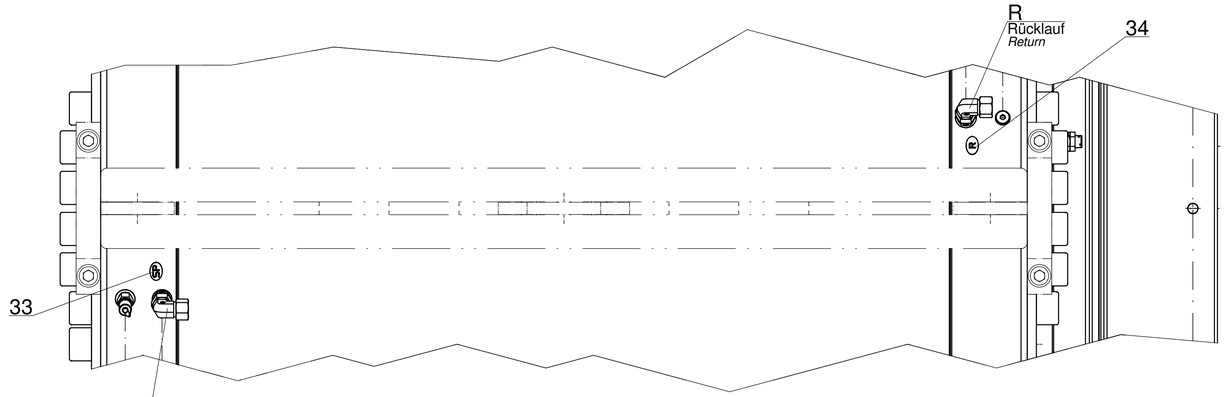
Sp





R





Grundgerät *Basic unit*
Spannpresse *Stressing jack*
15000kN/1000Hub *15000kN/ stroke 1000*

Technische Daten	*Technical data*		
Betriebsdruck max. zul. Spannen	*Max. permissible stressing pressure*	580bar=	15 254,58kN
Betriebsdruck max. zul. Rücklauf	*Max. permissible return pressure*	200bar=	3 444,74kN
Kolbenfläche Spannen	*Piston area stressing*		2 630,10cm²
Kolbenfläche Rücklauf	*Piston area return*		1 722,37cm²
Spannhub	*Stressing stroke*		1 000mm
Lichter Durchgang	*Center hole*		350mm
Gewicht Grundgerät	*Weight of basic unit*		ca. 5390kg
mit Traverse und seitlichen Halterungen, ohne Öl	*with carrying device and ...without oil*		

Allgemeintoleranz DIN ISO 2768 1 mittel

	Datum	Name
Bearb.	18.03.2016	VM
Gesp.		
Gepr.		

Gewicht:

Rohmaß/werkstoff/DIN

Spannpresse 15 000 kN 1000 Hub
ohne hydr. Verkeileinrichtung

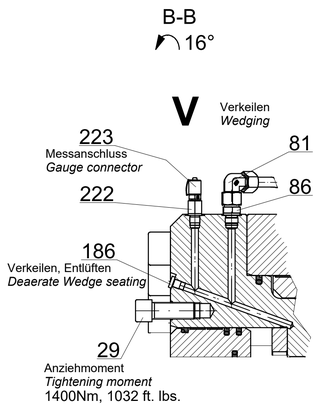
Zeichnungsnr.: 76-081.00

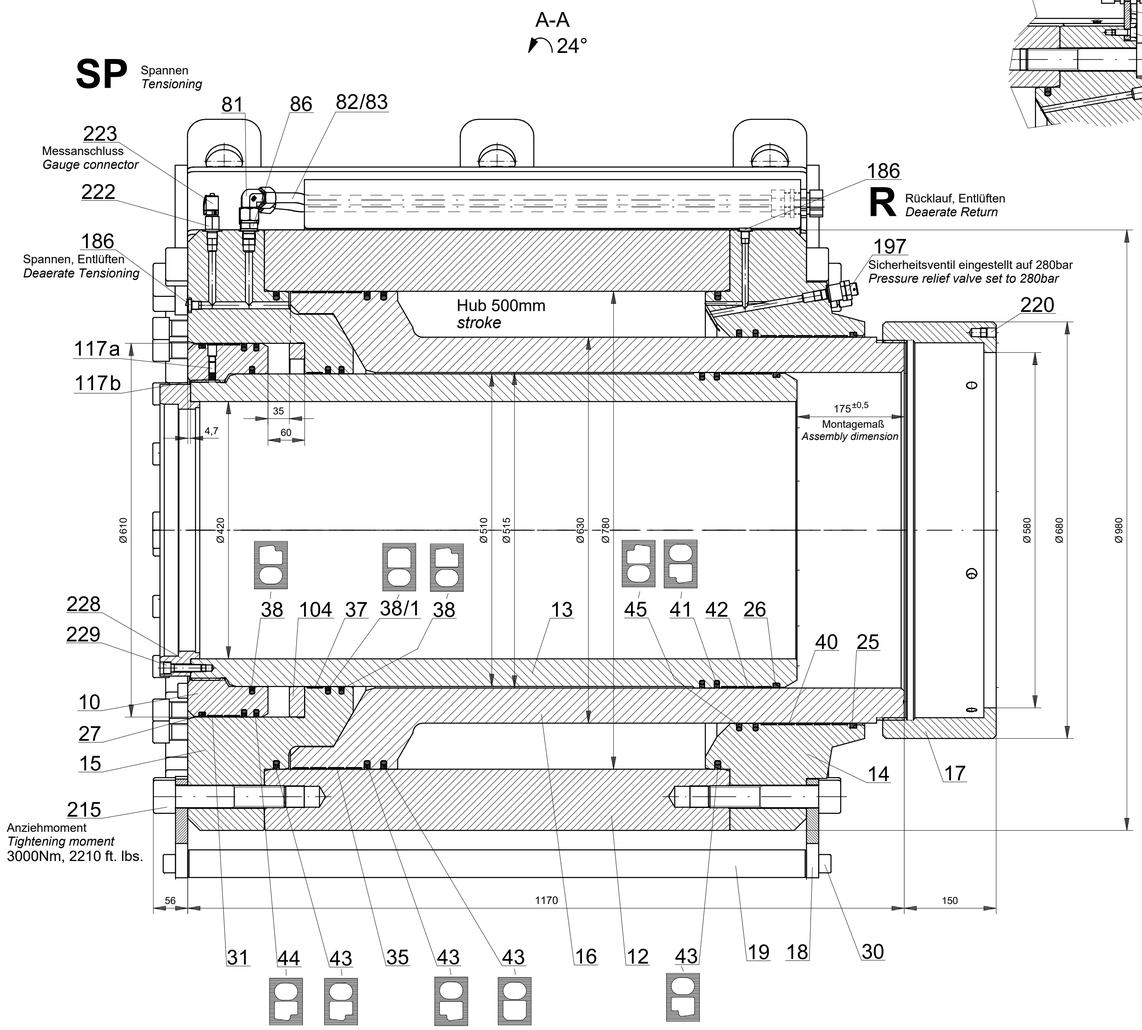
Maßstab: 1:5

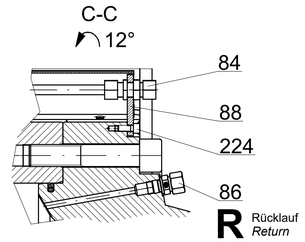
Blatt 01

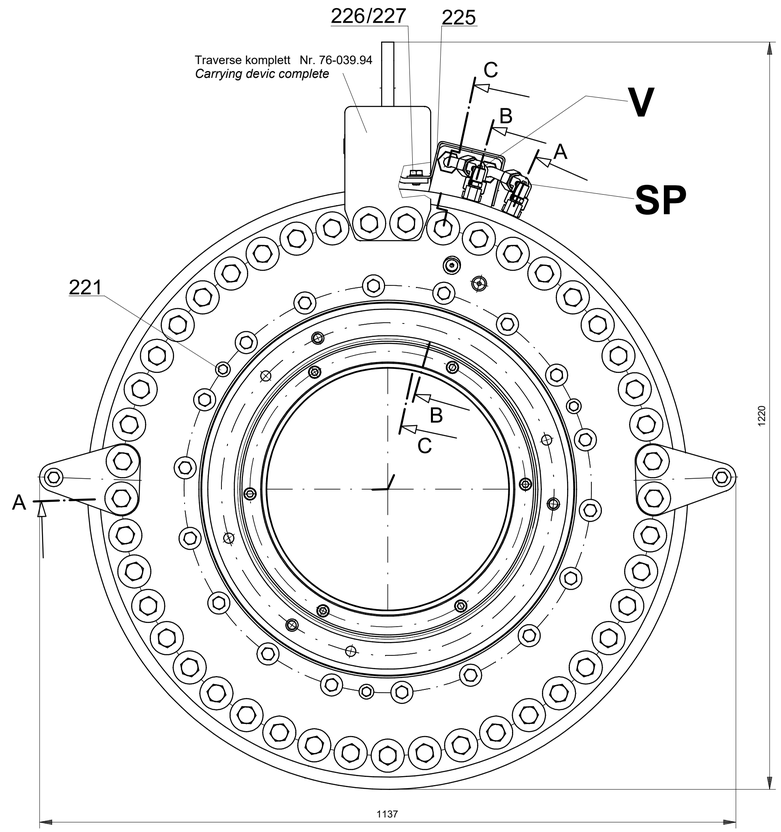
Index | Änderung | Datum | Name

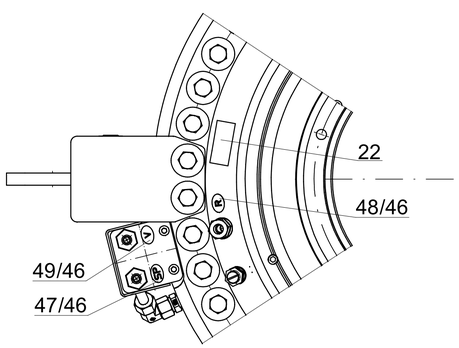
Ers.für:

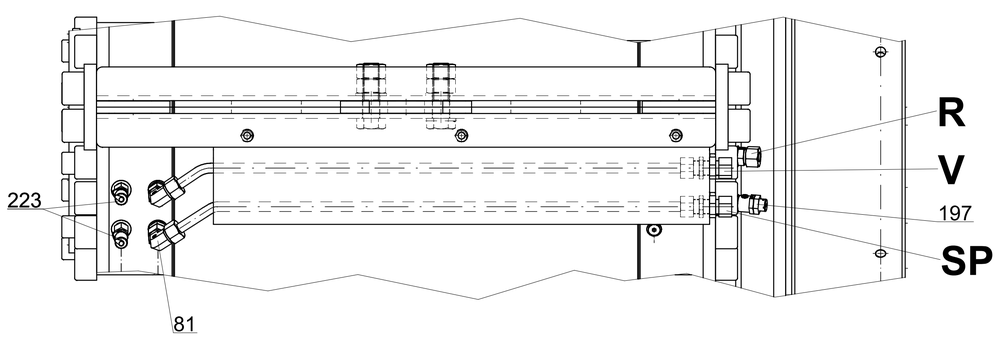












Grundgerät *Basic unit*
Spannpresse *Stressing jack*
15 000kN/ 500Hub *15 000kN/ stroke 500*

Technische Daten	*Technical data*		
Betriebsdruck max. zul. Spannen	*Max. permissible stressing pressure*	580bar=	15 632,68kN
Betriebsdruck max. zul. Rücklauf	*Max. premissible return pressure*	200bar=	3 322,22kN
Betriebsdruck max. zul. Verkeilen	*Max. premissible wedging pressure*	420bar=	3 694,53kN
Kolbenfläche Spannen	*Piston area stressing*		2 695,29cm²
Kolbenfläche Rücklauf	*Piston area return*		1 661,11cm²
Kolbenfläche Verkeilen	*Piston area wedging*		879,65cm²
Kolbenfäche Verkeilkolben-Rückzug	*Wedging piston return area*		40,25cm²
Spannhub	*Stressing stroke*		500mm
Verkeilhub	*Piston stroke-wedging*		60mm
Lichter Durchgang	*Centre hole*		420mm
Gewicht Grundgerät mit Traverse und seitlichen Halterungen, ohne Öl	*Weight of basic unit* *with carrying device and ...without oil*		ca. 4 690kg

Die technische Fachberatung ist ein kostenloser Kundendienst.
Haftung fuer Irrtuemer und Fehler ist ausgeschlossen.
Berechnungen sind zu pruefen bzw. durch einen
Sachverstaendigen pruefen zu lassen.

The technical advice is a service to the customer free of
charge. We exclude any liability for errors and mistakes.
Calculations are to be checked, i. e. to be examined
by an expert.

Allgemeintoleranz: DIN ISO 2768-1 mittel

	Datum	Name
Bearb.	06.11.91	MBL
Gesp.	22.12.2022	VSCH
Gepr.		

Gewicht:

Rohmaß/Werkstoff/DIN

Spannpresse TENSA M 15 000kN

Spannhub 500mm, Verkeilhub 60mm

Zeichnungsnr.: 76-039.00

Maßstab: 1:5

Blatt

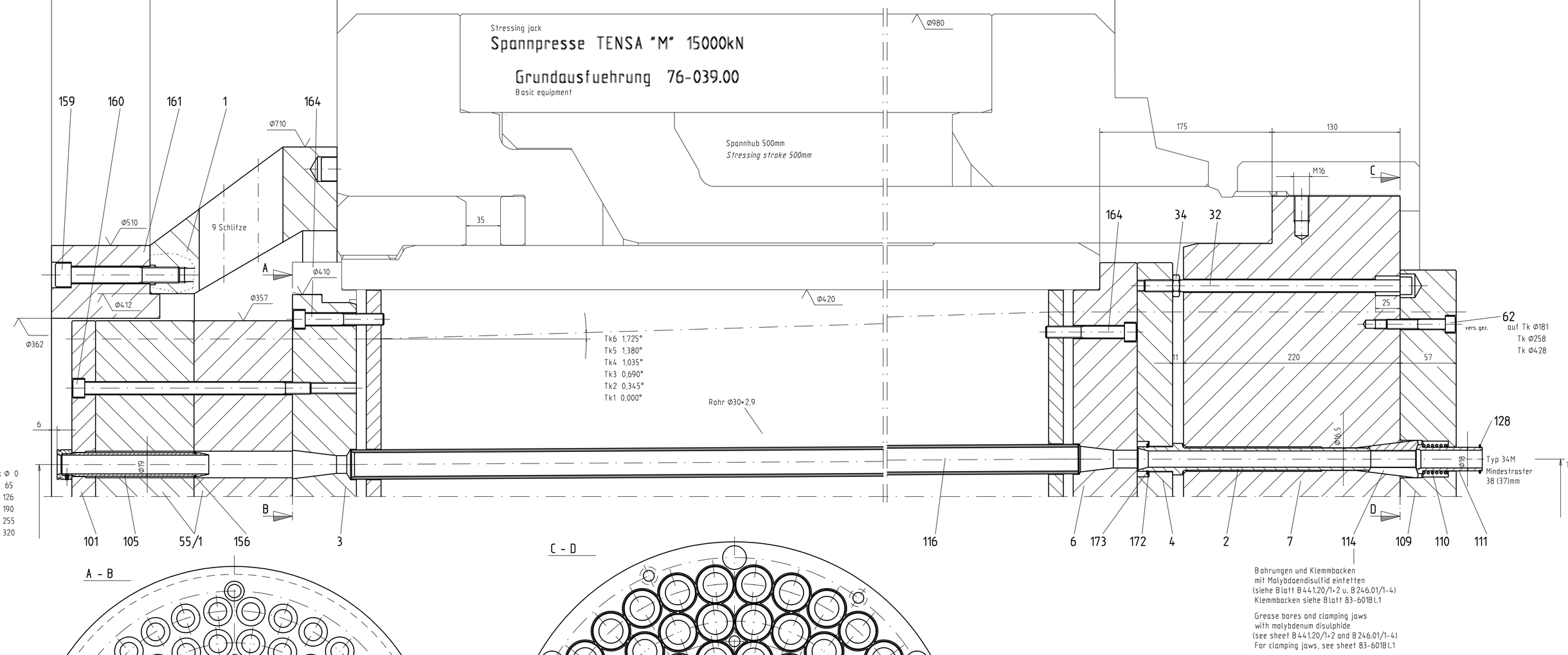
Ers.für:

Bl

Index | Änderung | Datum | Name

Stressing jack
Spannpresse TENSA "M" 15000kN

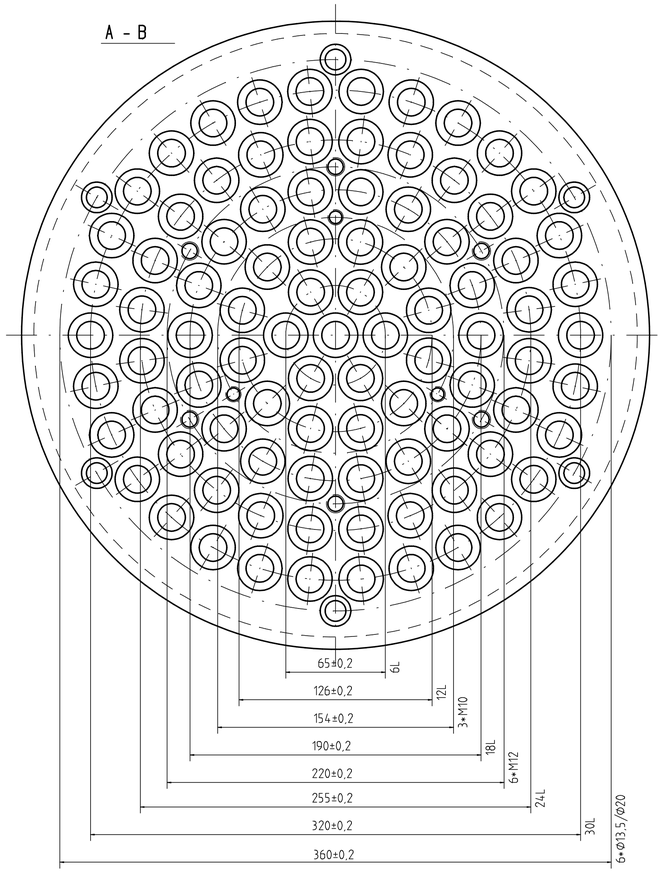
Grundausfuehrung 76-039.00
Basic equipment



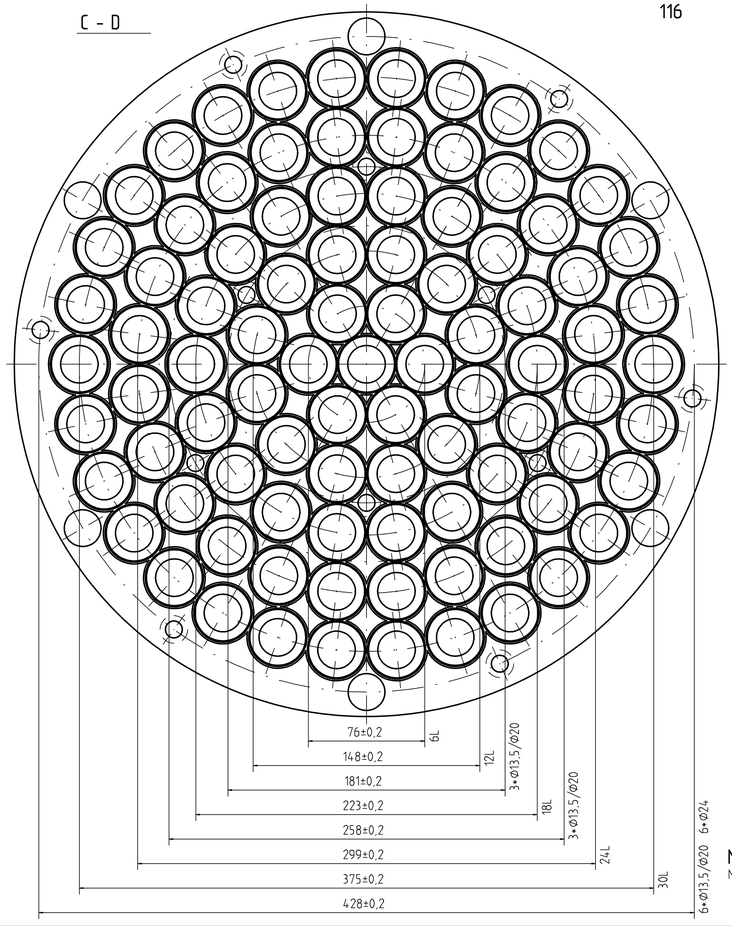
Bohrungen und Klemmbacken
mit Molybdaendisulfid einfetten
(siehe Blatt B 441.20/1+2 u. B 246.01/1-4)
Klemmbacken siehe Blatt 83-601Bl.1

Grease bores and clamping jaws
with molybdenum disulphide
(see sheet B 441.20/1+2 and B 246.01/1-4)
For clamping jaws, see sheet 83-601Bl.1

A - B



C - D



Pos. Item	WECHSELTEILSATZ C 91-SB Benennung - Abmessung	EXCHANGEABLE PARTS C 91-SB Designation - Dimensions	Best.-Nr. Ref. no.	Stck. Quantity
1	Abstuetzung	Support	76-039.16	1
2	Klemmlaesestueck	Releasing piece	76-039.72	91
3	Einpressplatte	Lock-off plate	76-039.36	1
4	Klemmlaeseplatte	Releasing plate	76-039.33	1
6	Verbindungsplatte	Conection plate	76-039.34	1
7	Klemmplatte	Gripping plate	76-039.32	1
32	Zylinderschraube M12*260 DIN912	Hex. head cap screw M12*260 DIN912	23-163.20	6
34	6kt.-Mutter M12 DIN936	Nut M12 DIN936	23-104.02	6
55/1	Distanz-Einpressplatte	Distance lock-off plate	76-039.37	2
62	Zylinderschraube M10* 60 DIN912	Hex. head cap screw M10* 60 DIN912	23-161.05	12
101	Einpress-Scheibe	Pressing disk	76-039.38	1
105	Auffaedelrohr	Threading tube	76-039.21	91
109	Federhalteplatte	Spring retaining plate	76-039.31	1
110	Druckfeder	Pressure spring	W -091.49	91
111	Einpressrohr	Pressing tube	76-020.94	91
114	Satz Klemmbacken Typ 34M 0,6"	Clamping jaws type 34M 0,6"	83-602.22	91
116	Einfaedelkaerper	Threading device	76-039.35	1
128	Sicherungsring A 24 DIN 471	Retaining ring A 24 DIN 471	23-324.09	91
156	Runddrahtsprengring RW 24 DIN7993	Snap ring RW24 DIN7993	23-324.25	91
159	Zylinderschraube M16*110 DIN912	Hex head cap screw M16*110 DIN912	23-165.16	3
160	Zylinderschraube M12*230 DIN912	Hex. head cap screw M12*230 DIN912	23-163.21	6
161	Adapterring	Adapter ring	76-039.17	1
164	Zylinderschraube M12* 80 DIN912	Hex. head cap screw M12* 80 DIN912	23-163.04	12
172	Pass-Scheibe 25*35*1	Shim ring 25*35*1	23-324.14	91
173	Sicherungsring A 25 DIN471	Retaining ring A 25 DIN471	23-324.16	91

Spanngliedreihe: ~~C 61-SB~~, C 91-SB

Pos.1 und Pos.3 sind gleich in allen WT dieser Reihe

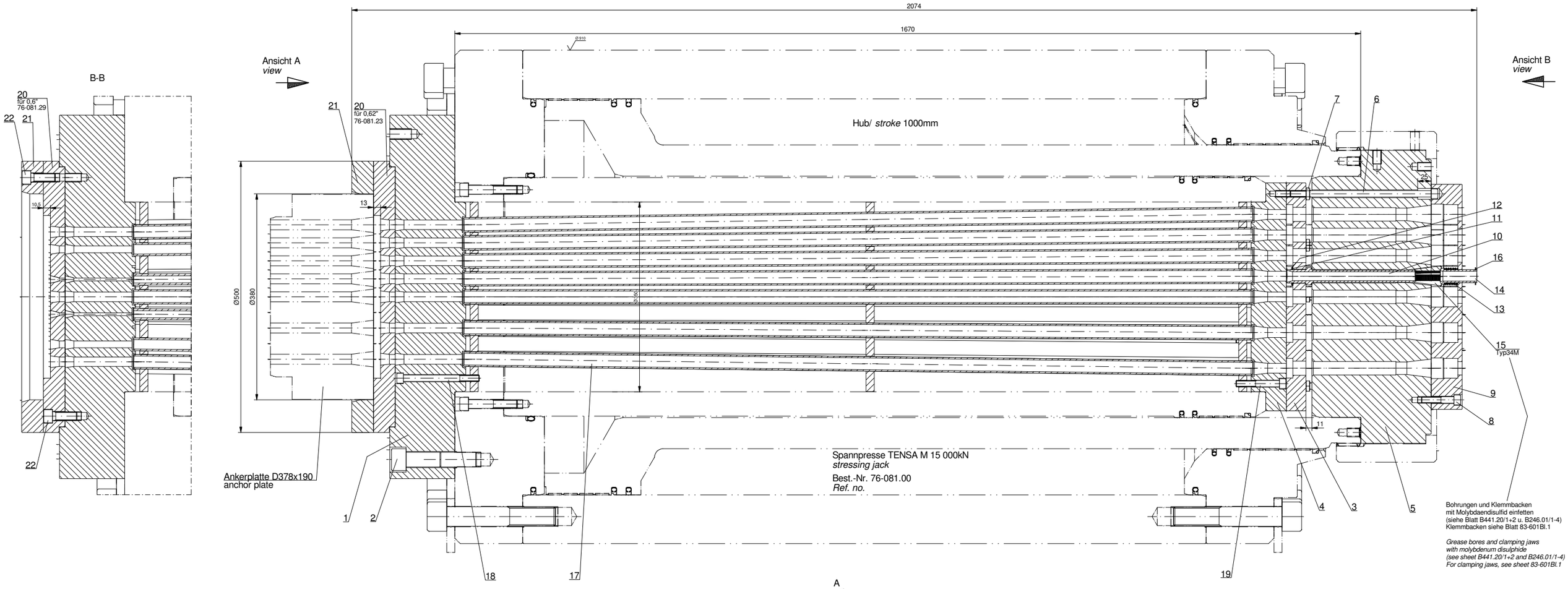
Mindestdrahtueberstand = 1620mm
Minimum projecting length of wire = 1620mm

Paul

C 91-SB 15000kN
Wechselteilzeichnung
Exchangeable interior parts drawing

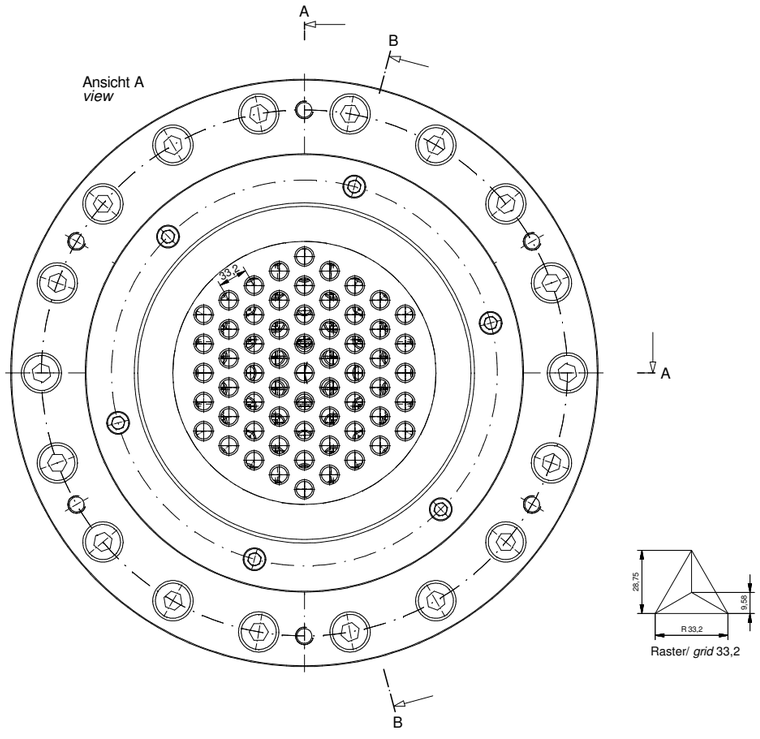
M 1:2
gez. 03.03.94 AR
gepr.
76-039 Bl.12

A-A

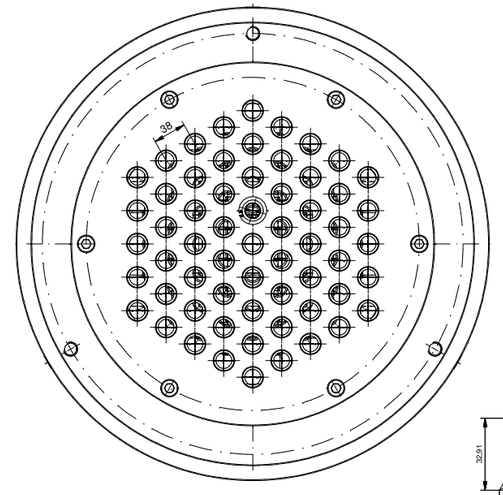


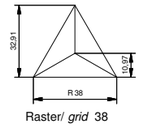
Bohrungen und Klemmbacken
mit Molybdaendisulfid einfetten
(siehe Blatt B441.20/1+2 u. B246.01/1-4)
Klemmbacken siehe Blatt 83-601Bl.1

Grease bores and clamping jaws
with molybdenum disulphide
(see sheet B441.20/1+2 and B246.01/1-4)
For clamping jaws, see sheet 83-601Bl.1



Raster/ *grid* 33,2





Raster/ *grid* 38

Wechselteilsatz 61x0,62" 15 000kN, Raster v33,2 h38 *Exchangeable interior part*			Best.-Nr. */Ref. no.* 76-081.20	
Pos. *Item*	Benennung-Abmessung	*Designation-Dimensions*	Best.-Nr. *Ref. no.*	Stück *Quantity*
1	Abstützung	*Support*	76-081.21	1
2	Inbussschraube M27x130 DIN912	*Hex. head cap screw M27x130 DIN912*	23-166.36	18
3	Klemmlöseplatte	*Lock-off plate*	76-081.26	1
4	Verbindungsplatte	*Connetion plate*	76-081.25	1
5	Klemmplatte	*Gripping plate*	76-081.27	1
6	Inbusschraube M12x260 DIN912	*Hex. head cap screw M12x260 DIN912*	23-163.20	6
7	6Kt-Mutter M12	*Hex. nut M12*	23-104.02	6
8	Inbusschraube M12x60 DIN912	*Hex. head cap screw M12x60 DIN912*	23-163.02	6
9	Federhalteplatte	*Spring retaining plate*	76-081.28	1
10	Klemmlösestück	*Releasing piece*	76-039.72	61
13	Druckfeder	*Pressure spring*	W-091.49	61
14	Einpressrohr	*Pressing tube*	76-020.94	61
15	Satz Klemmbacken Typ34M 0,62"	*Clamping jaws type34M 0,62"*	83-602.24	61
16	Seegerring A24 DIN471	*Seeger circlip A24 DIN471*	23-234.09	61
17	Einfädelkörper	*Threading device*	76-081.24	1
18	Inbusschraube M12x140 DIN912	*Hex. head cap screw M12x140 DIN912*	23-163.15	6
19	Inbusschraube M12x80 DIN912	*Hex. head cap screw M12x80 DIN912*	23-163.04	6
20	Abstütz-Rückhalteplatte	*Support/retaining plate*	76-081.23	1
21	Anschraub-Zentrierring	*Screwed centering ring*	76-081.22	1
22	Inbusschraube M16x45 DIN912	*Hex. head cap screw M16x45 DIN912*	23-165.02	12

Abstützverlängerung siehe 76-039Bl.22
support extended see 76-039Bl.22

Mindestdrahtüberstand = 1990mm
minimum projecting length of wire = 1990mm

Wechselteilzeich. 61x0.62"
15 000kN Raster v33.2 h38

Zeichnungsnr.: 76-039Bl.21

Maßstab: ------ 1:1