

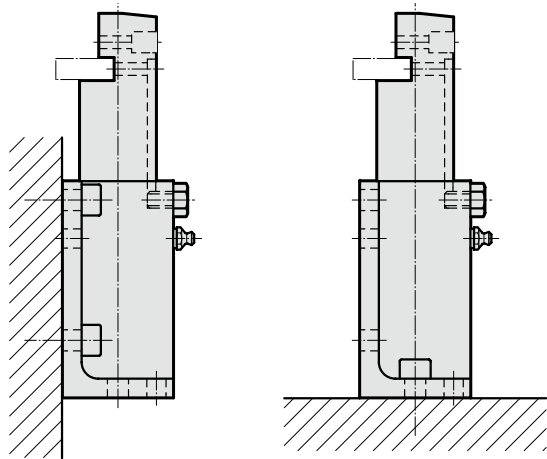
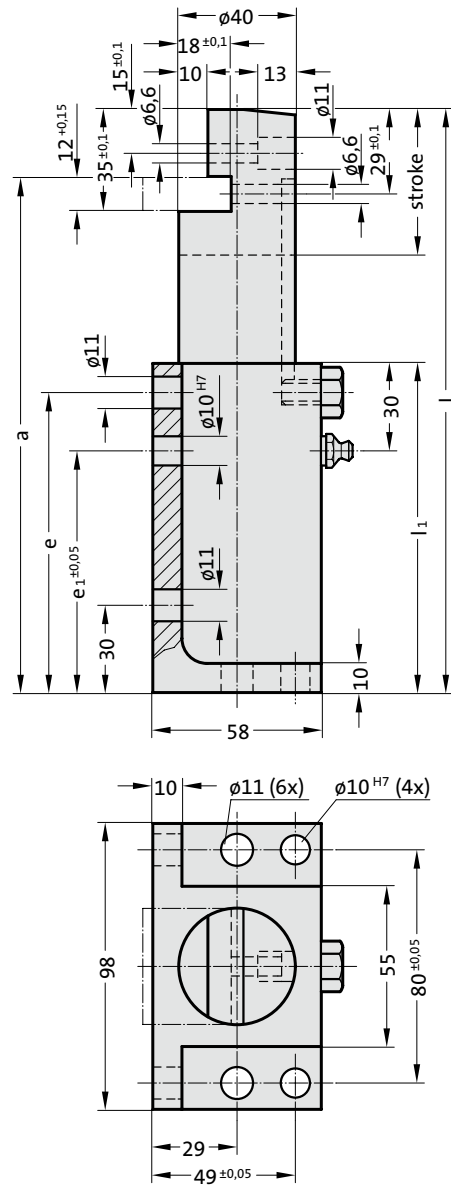
**STRIPPING UNIT, STOCK LIFTER, LIFTING UNIT,  
SPRING RAM**



# STRIPPING UNIT, WALL AND BOTTOM MOUNTING



2477..1.01



## 2477. .1.01 Stripping unit, wall and bottom mounting

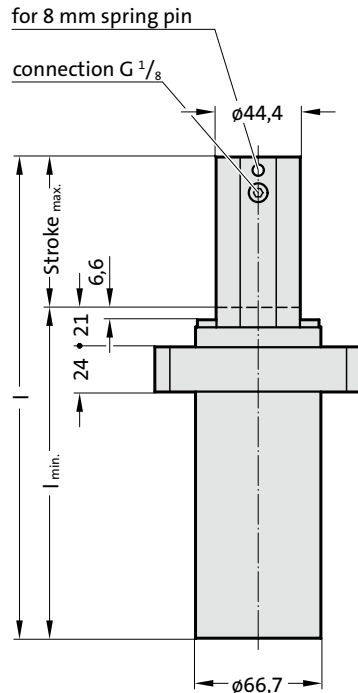
Order No	Stroke	Initial spring force [daN]	l	l <sub>1</sub>	a	e	e <sub>1</sub>
2477.050.00050.1.01	50	50	200	113	177	103	83
2477.050.00100.1.01	50	100	200	113	177	103	83
2477.050.00150.1.01	50	150	200	113	177	103	83
2477.050.00200.1.01	50	200	200	113	177	103	83
2477.080.00050.1.01	80	50	260	143	237	133	113
2477.080.00100.1.01	80	100	260	143	237	133	113
2477.080.00150.1.01	80	150	260	143	237	133	113
2477.080.00200.1.01	80	200	260	143	237	133	113



# STOCK LIFTER



2478.10.



## Description:

All component lifters in the various gas spring classes are of the same design and the different spring forces are achieved solely by means of different gas pressures. The pressure can be topped up or reduced via the piston rod.

## Note:

Pressure medium: Nitrogen - N<sub>2</sub>  
 Max. filling pressure: 180 bar  
 Min. filling pressure: 25 bar  
 Working temperature: 0°C to +80°C  
 Temperature related force increase: ± 0,3%/°C  
 Max. recommended extensions per minute: approx. 80 to 100 (at 20°C)  
 Max. piston speed: 1,6 m/s  
 Order No for spare parts kit: 2478.10.00320  
 Spring forces as per spring diagram.  
 Upon customers request, also available unfilled, Order No 2478.10.00000...

2478.10.

## Stock lifter

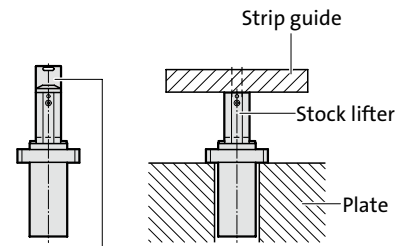
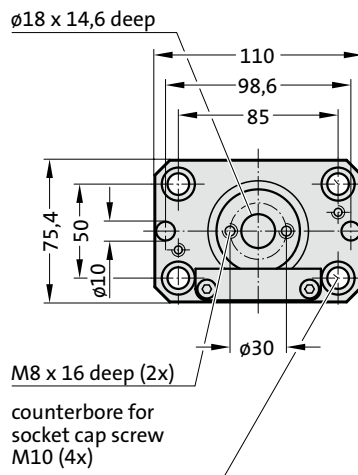
Order No	Stroke <sub>max.</sub>	l <sub>min.</sub>	l
2478.10.□□□□□.025	25	121	146
2478.10.□□□□□.050	50	146	196
2478.10.□□□□□.080	80	176	256
2478.10.□□□□□.100	100	196	296
2478.10.□□□□□.125	125	221	346
2478.10.□□□□□.150	150	246	396
2478.10.□□□□□.163	163	259	422
2478.10.□□□□□.175	175	271	446
2478.10.□□□□□.200	200	296	496
2478.10.□□□□□.210	210	306	516

\*complete with initial spring force

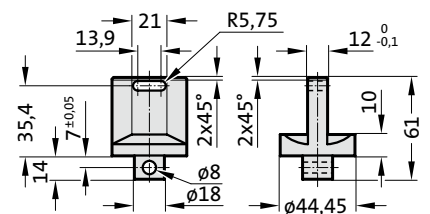
Spring force marking:

Initial spring force [daN] - Pressure [bar]

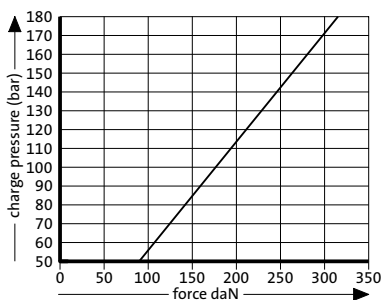
- .00050. - 28
- .00100. - 56
- .00150. - 84
- .00200. - 113
- .00250. - 141
- .00320. - 180



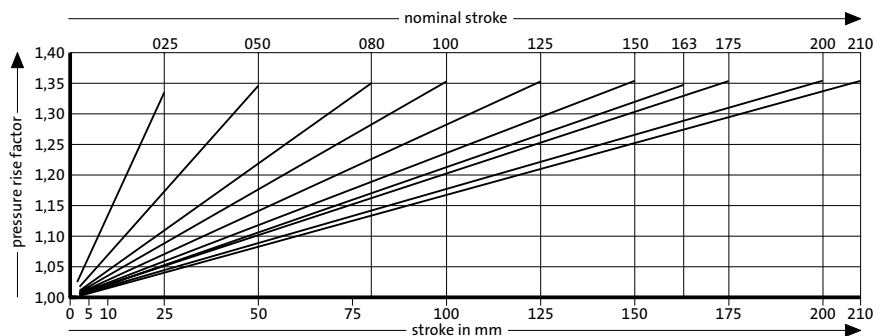
2478.10.00320.01 Fixing adapter order separately



Initial spring force versus charge pressure



Spring force Diagram displacement versus stroke rise



Pressure rise factor accounts for displacement but not external influences!

# STOCK LIFTER

## Description:

The cylinder base can be used for topping up and reducing gas pressure and for inter-connection arrangements.

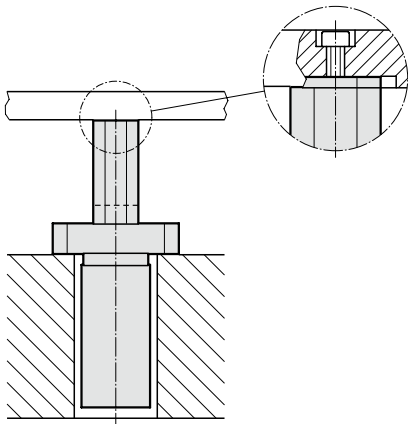
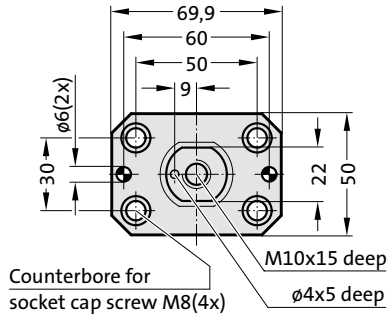
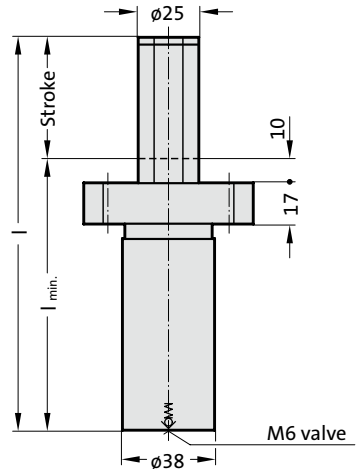
## Note:

Stocklifters are equipped with a "PowerLine" 2487.12.00170. gas spring with no option for wear compensation, so complete replacement is required.

Initial spring force: 170 daN  
 Pressure medium: Nitrogen – N<sub>2</sub>  
 Max. filling pressure: 180 bar  
 Min. filling pressure: 25 bar  
 Working temperature: 0°C to +80°C  
 Temperature related force increase: ± 0,3%/°C  
 Max. recommended extensions per minute: approx. 40 to 100 (at 20°C)  
 Max. piston speed: 1,6 m/s  
 Max. usable stroke: 100%

Spring forces as per spring diagram.

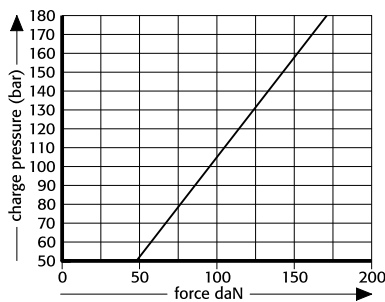
2478.30..1



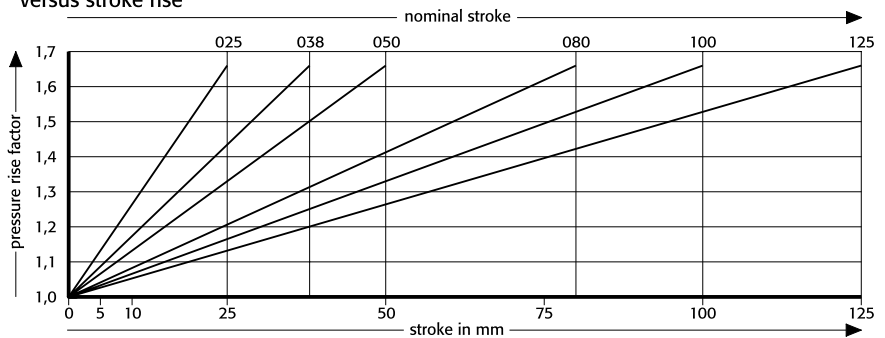
**2478.30..1**  
**Stock lifter**

Order No	Stroke <sub>max.</sub>	l <sub>min.</sub>	l
2478.30.00170.025.1	25	87	112
2478.30.00170.038.1	38	100	138
2478.30.00170.050.1	50	112	162
2478.30.00170.080.1	80	145	225
2478.30.00170.100.1	100	165	265
2478.30.00170.125.1	125	190	315

Initial spring force versus charge pressure



Spring force Diagram displacement versus stroke rise

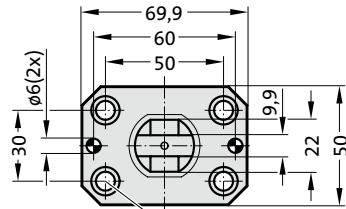
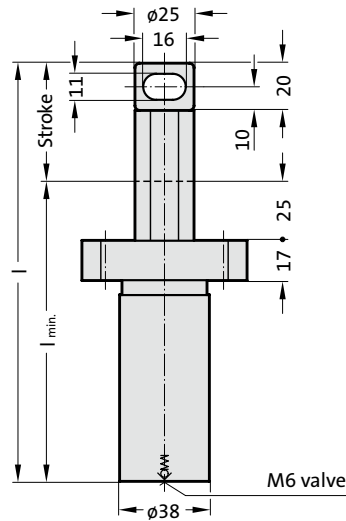


Pressure rise factor accounts for displacement but not external influences!

# STOCK LIFTER WITH ATTACHMENT LUG



2478.30. .2



Counterbore for socket cap screw M8(4x)

## Description:

The cylinder base can be used for topping up and reducing gas pressure and for inter-connection arrangements.

## Note:

Stocklifters are equipped with a "PowerLine" 2487.12.00170. gas spring with no option for wear compensation, so complete replacement is required.

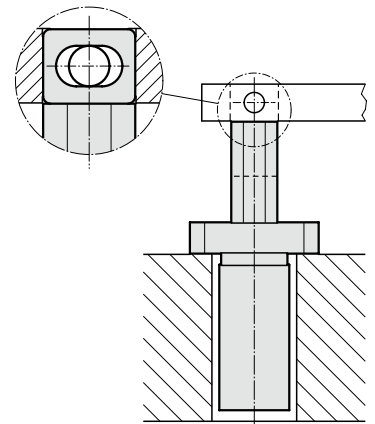
- Initial spring force: 170 daN
- Pressure medium: Nitrogen – N<sub>2</sub>
- Max. filling pressure: 180 bar
- Min. filling pressure: 25 bar
- Working temperature: 0°C to +80°C
- Temperature related force increase: ± 0,3%/°C
- Max. recommended extensions per minute: approx. 40 to 100 (at 20°C)
- Max. piston speed: 1,6 m/s
- Max. usable stroke: 100%

Spring forces as per spring diagram.

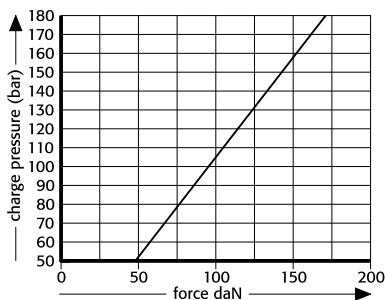
2478.30. .2

Stock lifter with attachment lug

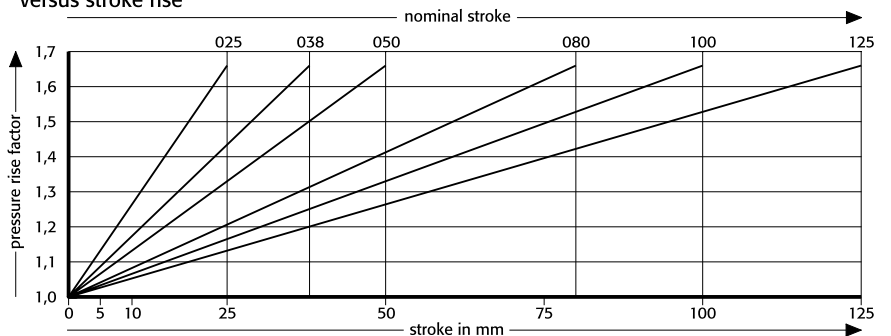
Order No	Stroke <sub>max.</sub>	l <sub>min.</sub>	l
2478.30.00170.025.2	25	102	127
2478.30.00170.038.2	38	115	153
2478.30.00170.050.2	50	127	177
2478.30.00170.080.2	80	160	240
2478.30.00170.100.2	100	180	280
2478.30.00170.125.2	125	205	330



Initial spring force versus charge pressure



Spring force Diagram displacement versus stroke rise



Pressure rise factor accounts for displacement but not external influences!

# STRIPPER

## Description:

The stripper is used for stripping 2478.30.00170.3 of sheet metal parts after the forming operation (eg folding functions). Gas refill, reduce and composite assembly are possible over the cylinder tube sheet.

## Note:

Strippers are equipped with a "Power Line" 2487.12.00170. gas spring with no option for wear compensation, so complete replacement is required.

Initial spring force: 170 daN

Pressure medium: Nitrogen - N<sub>2</sub>

Max. filling pressure: 180 bar

Min. filling pressure: 25 bar

Working temperature: 0°C to +80°C

Temperature force increase: ± 0,3%/°C

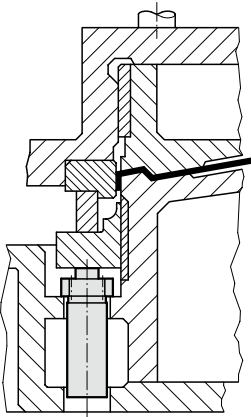
Max. recommended extensions per minute:

approx. 40 to 100 (at 20°C)

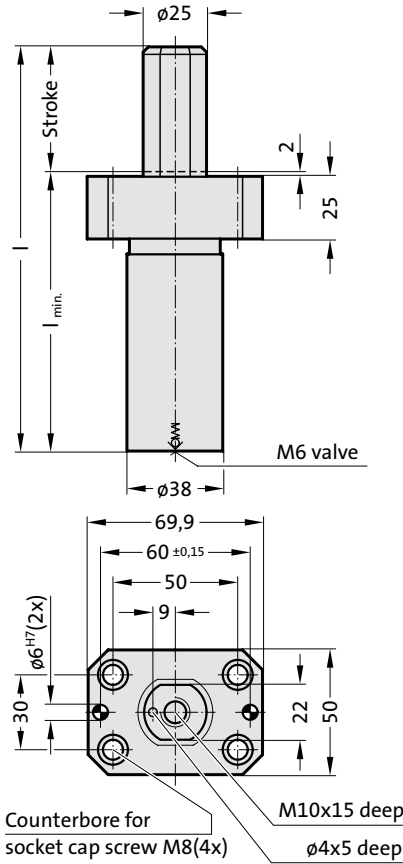
Max. piston speed: 1,6 m/s

Max. usable stroke: 100%

Spring forces as per spring diagram.



## 2478.30..3

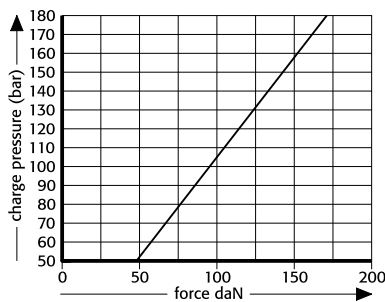


## 2478.30..3

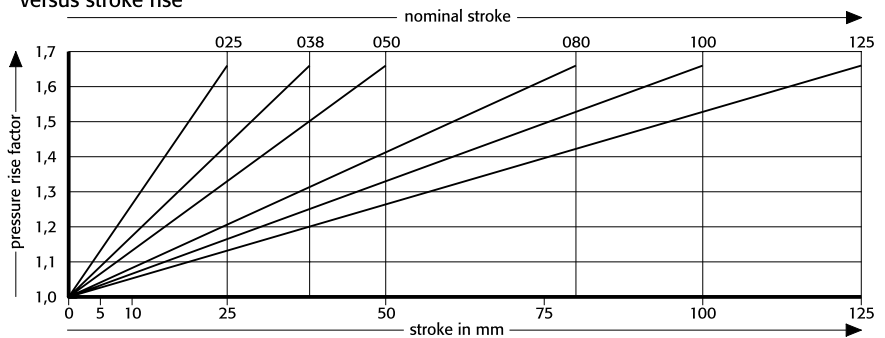
### Stripper

Order No	Stroke <sub>max.</sub>	$l_{min}$	$l$
2478.30.00170.025.3	25	87	112
2478.30.00170.038.3	38	100	138
2478.30.00170.050.3	50	112	162
2478.30.00170.080.3	80	145	225
2478.30.00170.100.3	100	165	265
2478.30.00170.125.3	125	190	315

## Initial spring force versus charge pressure



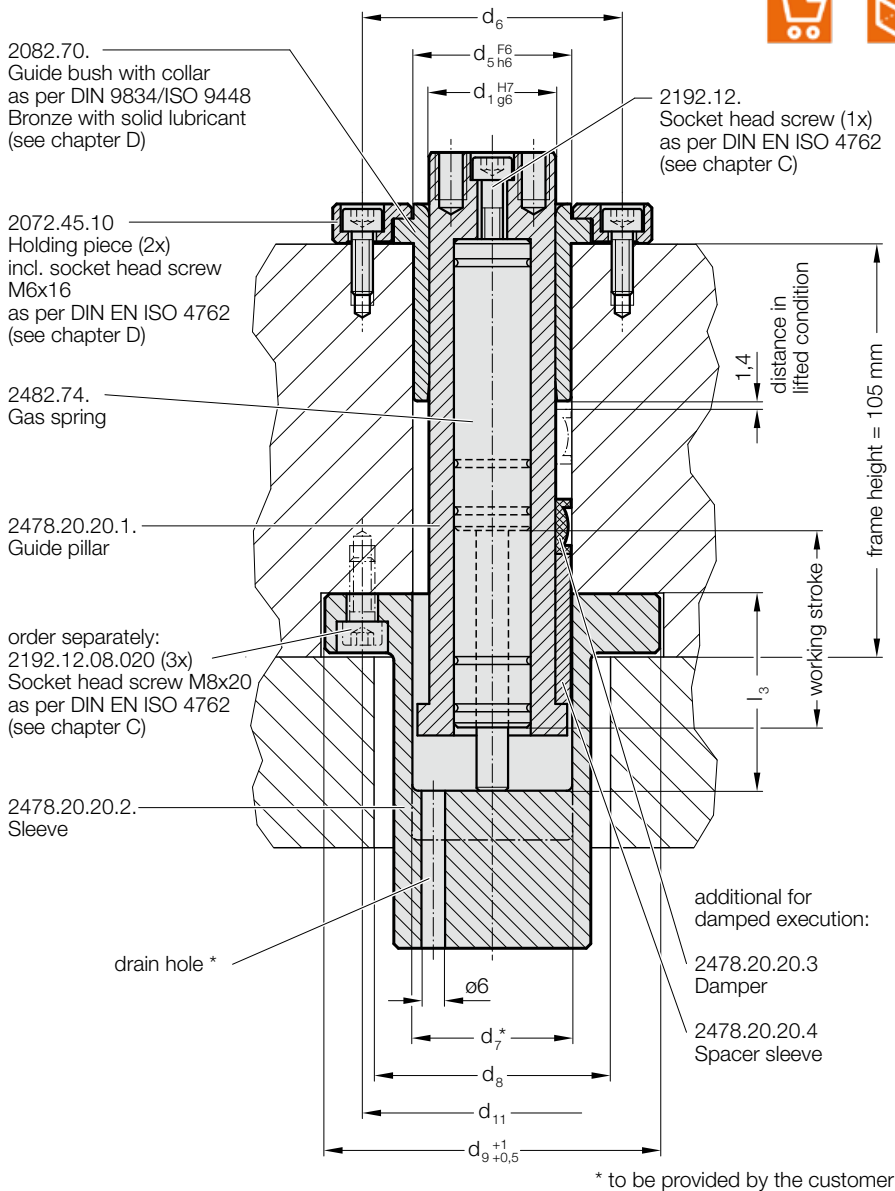
## Spring force Diagram displacement versus stroke rise



Pressure rise factor accounts for displacement but not external influences!

# LIFTING UNIT (NOT DAMPED/DAMPED) TO MERCEDES-BENZ

2478.20.20.



**Note:**

Frame height = 105 mm  
Depending on the frame height and the installation type of the sleeve 2478.20.20.2. (I3 - tapped bore in the frame or cut-out in the cast), the countersink varies for the determination of the lifting path.

**Size 2\* - version, damped**

Maximum lifting path 66 mm  
Lifting path 66 mm; Distance height 0 mm  
Lifting path 30 mm; Distance height 36 mm

**Size 3\* - version, damped**

Maximum lifting path 80 mm  
Lifting path 80 mm; spacing height 47 mm  
Lifting path 70 mm; spacing height 57 mm

In order to maintain the clearance of 1.4 mm in a raised state (dampener to bushing), a distance sleeve is to be used between the damper and guide post flange.

\* Distance height determined at the customer (delivery length: 61 mm)

**2478.20.20. Lifting unit (not damped/damped) to Mercedes-Benz**

Size	Working stroke	Working stroke, damped	d <sub>1</sub>	d <sub>5</sub>	d <sub>6</sub>	d <sub>7</sub> <sup>*</sup>	d <sub>8</sub>	d <sub>9</sub>	d <sub>11</sub>	l <sub>3</sub> <sup>*</sup>
1	5 - 35	-	32	40	66	40	60	85	67	-
2	40 - 70	30 - 66	32	40	66	40	60	85	67	-
3	75 - 115	70 - 80	32	40	66	40	60	85	67	-

\*to be supplied by customer

The lifting unit must be ordered in three sizes with the respective order numbers of the individual parts:

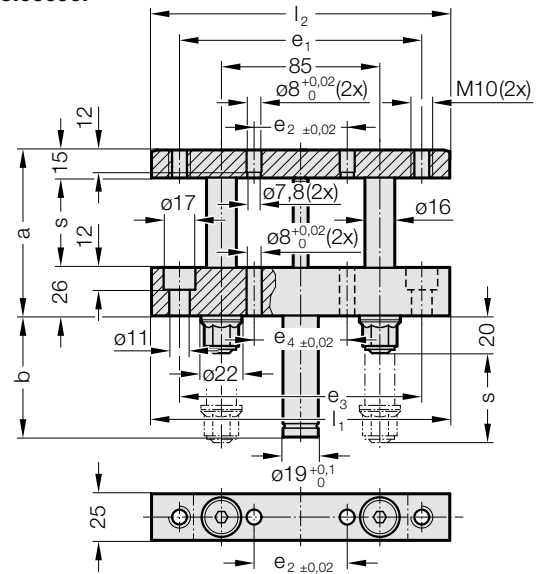
Size	1	2	3
Guide pillar	2478.20.20.1.01	2478.20.20.1.02	2478.20.20.1.03
Sleeve	-	2478.20.20.2.02	2478.20.20.2.03
Guide bushing	2082.70.032	2082.70.032	2082.70.032
Gas spring	2482.74.00090.038.2	2482.74.00090.080.2	2482.74.00090.125.2
Holding piece (2x) incl. socket head screw M6x16			
DIN EN ISO 4762	2072.45.10	2072.45.10	2072.45.10
Socket cap screw (1x) DIN EN ISO 4762	2192.12.06.030	2192.12.06.020	2192.12.06.030
additional for damped execution:			
Damper	-	2478.20.20.3	2478.20.20.3
Spacer sleeve	-	2478.20.20.4	2478.20.20.4



# LIFTER UNIT WITH PILLAR GUIDANCE



2478.25.00090.



## Description:

Filling pressure regulation and a composite arrangement are possible using the cylinder tube base. To attach the strip guide on the lifter rail, use the provided threads. We recommend designing the strip guide for a maximum material width of +0.4 mm (0.2 mm for each side) (View X). When several lifter units are used, only one unit per piece should be pinned in order to prevent redundancy.

## Note:

The lifter unit is equipped with gas spring type 2482.74.00090, which cannot be repaired in case of wear and must therefore be exchanged completely.

Initial spring force: 90 daN

Pressure medium: Nitrogen N<sub>2</sub>

Max. filling pressure: 180 bar

Min. filling pressure: 25 bar

Working temperature: 0°C to +80°C

Temperature related force increase: ± 0.3%/°C

Max. recommended extensions per minute:

approx. 40 to 100 (at 20°C)

Max. piston speed: see diagram

Max. usable stroke: 95%

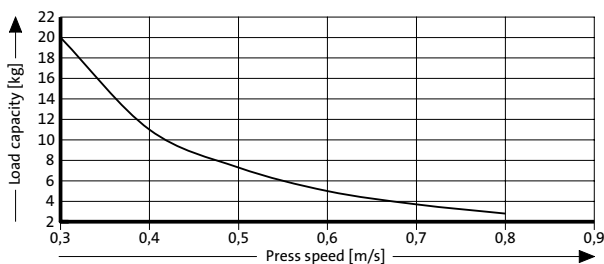
Spring forces as per spring diagram in Chapter F - 2482.74.

## 2478.25.00090. Lifter unit with pillar guidance

Order No	s Stroke max.	a	b	l <sub>1</sub>	l <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>3</sub>	e <sub>4</sub>	Spring force [daN]		Gas spring
										initial	final	
2478.25.00090.025	23	64	40	160	115	50	25	130	50	90	130	2482.74.00090.025.2
2478.25.00090.038	36	77	53	160	160	130	50	130	50	90	120	2482.74.00090.038.2
2478.25.00090.050	48	89	65	160	160	130	50	130	50	90	120	2482.74.00090.050.2
2478.25.00090.063	61.5	102.5	81.5	160	160	130	50	130	50	90	120	2482.74.00090.063.2
2478.25.00090.080	78	119	98	160	160	130	50	130	50	90	120	2482.74.00090.080.2
2478.25.00090.100	98	139	118	160	160	130	50	130	50	90	120	2482.74.00090.100.2
2478.25.00090.125	123	164	143	160	160	130	50	130	50	90	120	2482.74.00090.125.2
2478.25.00090.150	148	189	168	160	160	130	50	130	50	90	120	2482.74.00090.150.2

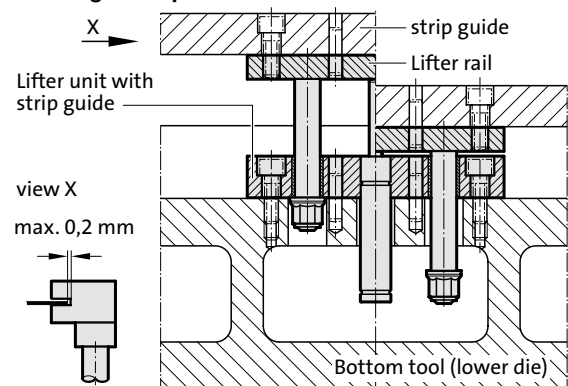
## 2478.25.00090.

### Max. load per lifter unit\*\*



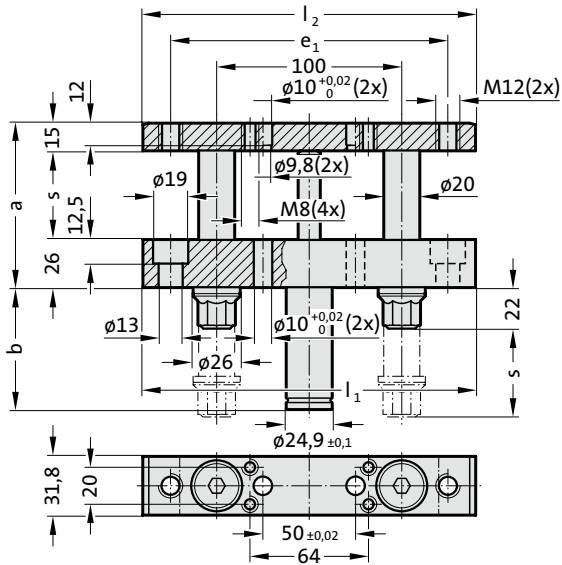
\*\* Only recommended load capacity (per lifter unit) depending on the press speed. Provide an external stop in case of higher loads.

## Mounting example



# LIFTER UNIT WITH PILLAR GUIDANCE

2478.25.00200.



## Description:

Filling pressure regulation and a composite arrangement are possible using the cylinder tube base. To attach the strip guide on the lifter rail, use the provided threads. We recommend designing the strip guide for a maximum material width of +0.4 mm (0.2 mm for each side) (View X). When several lifter units are used, only one unit per piece should be pinned in order to prevent redundancy.

## Note:

The lifter unit is equipped with gas spring type 2480.21.00200.

Initial spring force: 200 daN

Pressure medium: Nitrogen N<sub>2</sub>

Max. filling pressure: 180 bar

Min. filling pressure: 25 bar

Working temperature: 0°C to +80°C

Temperature related force increase: ± 0.3%/°C

Max. recommended extensions per minute:

approx. 80 to 100 (at 20°C)

Max. piston speed: see diagram

Max. usable stroke: 95%

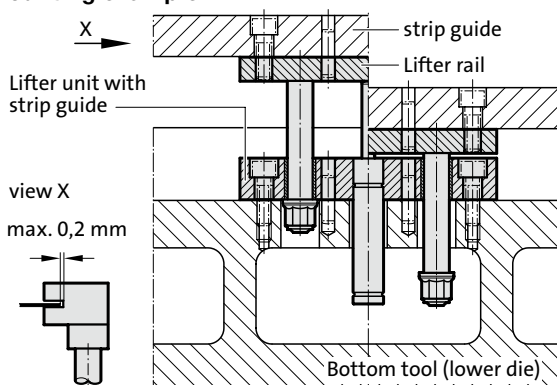
Order No for spare parts kit: 2480.21.00150

Spring forces as per spring diagram in Chapter F - 2480.21.

## 2478.25.00200. Lifter unit with pillar guidance

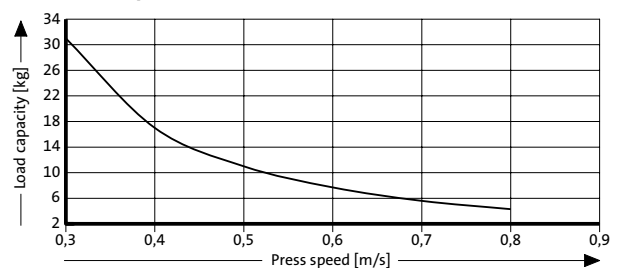
Order No	s Stroke max.	a	b	l <sub>1</sub>	l <sub>2</sub>	e <sub>1</sub>	Spring force [daN]		Gas spring
							initial	final	
2478.25.00200.025	23	64	41	180	140	-	200	308	2480.21.00200.025
2478.25.00200.038	36	77	54	180	180	150	200	309	2480.21.00200.038
2478.25.00200.050	48	89	66	180	180	150	200	309	2480.21.00200.050
2478.25.00200.063	61.5	102.5	82.5	180	180	150	200	302	2480.21.00200.063
2478.25.00200.080	78	119	99	180	180	150	200	304	2480.21.00200.080
2478.25.00200.100	98	139	119	180	180	150	200	305	2480.21.00200.100
2478.25.00200.125	123	164	144	180	180	150	200	306	2480.21.00200.125
2478.25.00200.150	148	189	177	180	180	150	200	300	2480.21.00200.150
2478.25.00200.175	173	214	202	180	180	150	200	298	2480.21.00200.175
2478.25.00200.200	198	239	227	180	180	150	200	297	2480.21.00200.200

## Mounting example



## 2478.25.00200.

### Max. load per lifter unit\*\*



\*\* Only recommended load capacity (per lifter unit) depending on the press speed. Provide an external stop in case of higher loads.