



## Cylinder 3PL

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**PISTONI TELESCOPICI SINCRONIZZATI IDRAULICAMENTE SERIE 3PL**  
**HYDRAULICALLY SYNCHRONIZED TELESCOPIC CYLINDERS TYPE 3PL**  
**TELESKOP GLEICHLAUFZYLLINDER TYP 3PL**  
**VÉRINS TÉLESCOPIQUES TYPE 3PL**

# Synchronized Telescopic Cylinder

## Type 3 PL

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### **1.0 General Description**

The synchronized telescopic cylinder, type 3 PL is single acting and has uniform lifting and lowering speeds owing to a special design principle, i.e. the individual stages extend and retract at an equal rate.

It is manufactured as a two stage and three stage telescopic cylinder and available in 19 sizes.

It is mainly applied for hydraulically operated lift system where there are installation problems because space is limited, so that the overall length of the retracted cylinder must be substantially shorter than the actual stroke.

The synchronized telescopic cylinder is - up to a certain travel distance - a favourably price option compared to the indirect cylinder system (2:1).

By the use of additional guide yokes for the second and third stages respectively, the buckling strength is increased which allows the selection of a cylinder with smaller piston diameters.

### **2.0 Performance**

The non return valves are closed during normal operations.

On upward travel the oil discharged by the pump is fed, via the lift control valve and the pressure connection port of the cylinder, into the piston chamber of the largest stage.

This causes an axial shifting of this stage, thereby displacing the oil in the differential space between cylinder casing and piston rod, from where it flows through transversal boreholes into the piston chamber of the next stage.

Thus this piston extends too, and displaces against the oil of the differential space to the smallest space which is also shifted.

Since the differential area corresponds to the piston area of the next smaller stage, the movement of all the individual stages are uniform, and the extension and retraction speeds remain equal over the total stroke.

The pump is therefore only connected with the largest stage, while the remaining stages make up a closed system.

The non-return valves, inserted in the bottom of the individual stages, ensure at any time an equal stroke position of the two and three stages respectively.

The non-return valve in a leading piston would, in downward direction, at the lowest stopping position be opened by the push rod striking against the cylinder bottom.

Oil would flow through the valve so long until a state of synchronization between the individual stages were restored.

### 3.0 Construction and design

To ensure optimal travel performance at slow speeds as well, all synchronized telescopic cylinders are equipped with low-friction guide bands made of teflon/bronze, and teflon seals.

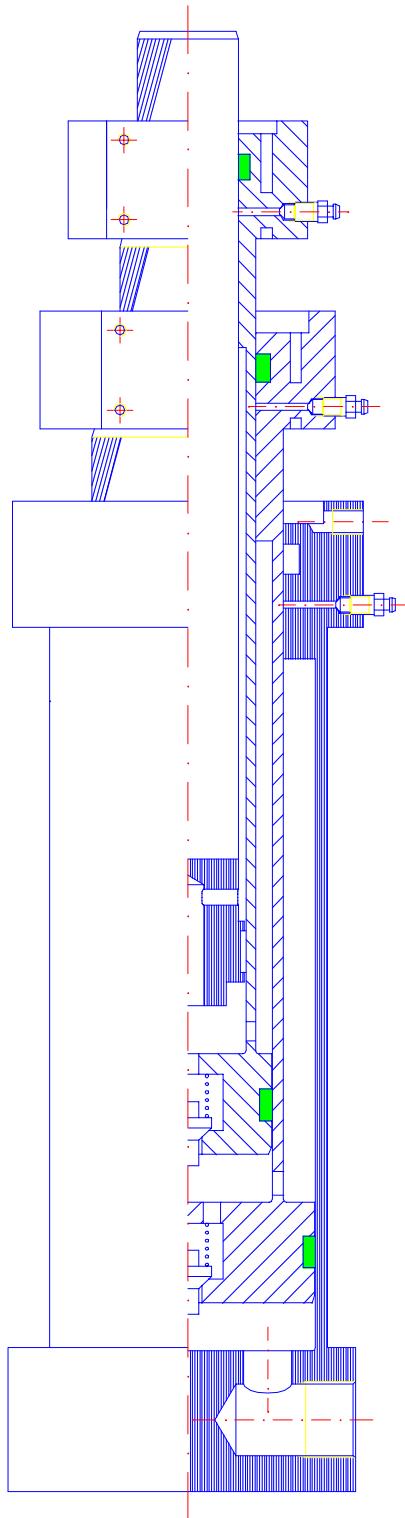
The upper end stops of each stage are cushioned.

Each cylinder head is provided with a vent screw at the topmost point, before the seal. Any leak oil that might develop is collected at the lowest leakage oil ring and drains off via the leakage oil connection.

### 4.0 Installation instructions

Besides the minimum top and bottom overtravels, as specified in the relevant provisions, the corresponding travel distances acc. to sheet 2PX0262 pag. 4 must also be taken into consideration.

Side acting cylinder should be attached at the upper end to the wall by a retaining clamp.



## 5.0 Order Code

3PL - 100/3	-	VT-B / Z3	-	DO 11/2	-	15700
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Telescopic Cylinder

type 3PL

Diameter/number of stages

35/2

42/2

50/2

63/2

70/2

85/2

100/2

example : 100/3

100 = smallest diam. 140/2

of rod in mm 170/2

/3 = 3 - stage 200/2

35/3

42/3

50/3

63/3

70/3

85/3

100/3

120/3

140/3

Side-Ram or Central-Direct-flange

side-ram with dowel RS-Z

side-ram with hole RS-B

central with VE flange acc. to EN81.2 VE-B

central with VT flange acc. to TRA 200 VT-B

With / without Yoke Plates for guide yokes

without yoke plates, no guide yoke X0

with yoke plates for 2. stage Z2

with yoke plates for 2. and 3. stage Z3

without yoke plates, 2. stage guided Y2

without yoke plates, 2. and 3. stage guided Y3

Pressure port / size

pressure port bottom size (RS) DU

pressure port top size (VE + VT) DO

Cylinder stroke in mm

Cylinder stroke incl. under and overtravel (mm) 15700

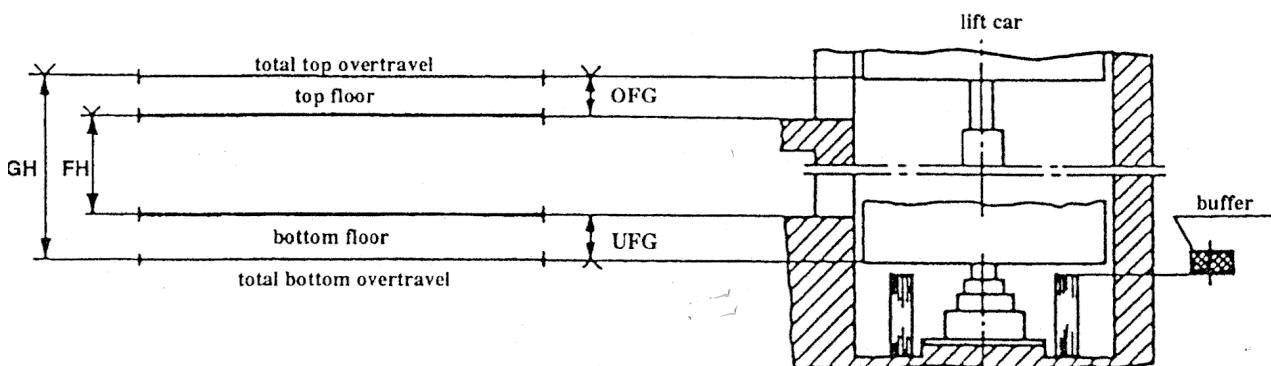
**Instructions for planning and installation  
of synchronized telescopic 2-stage and 3-stage cylinders**

To ensure satisfactory operations on the synchronized telescopic 3 PL cylinders, special attention should be given to the following remarks:

- 1.0** The following conditions have to be met when dividing the total reserve stroke of the cylinder into top and bottom overtravels (OFG and UFG).  
Should these conditions not to be adhered to, operational problem will arise.

**2.0 Details to determine the total stroke of telescopic cylinder**

- FH = Travel high of cabin  
 RH = Reserve stroke = total bottom overtravel + top overtravel (RH = UFG + OFG)  
 GH = Total stroke of the cylinder = travel + reserve stroke (GH = FH + RH)  
 UF = Bottom overtravel acc. to the given regulations  
 PH = Buffer stroke according to EN 81.2 = 65 mm  
 US = Bottom margin of 30 mm reserve stroke of cylinder (lift car rests on end stop support), buffer compressed.  
 UFG = Total bottom overtravel = buffer stroke + bottom margin of safety (UFG = PH + US)  
 OS = Top safety travel of 50 mm  
 OFG = Total top overtravel for two-stage telescopic cylinders:  
     = total bottom overtravel + top safety travel (OFG = UFG + OS)  
 OFG = Total top overtravel for three-stage telescopic cylinders:  
     = total bottom overtravel x 2 + top safety travel (OFG = UFG x 2 + OS)  
 BD = Allowance for structural inaccuracies  
 The values determined by the above formula for the total top overtravel (OFG) are as a rule, larger for three stage hydraulic rams than they would have to be according to EN or other specifications. But they may be made even larger, if the upper safety space is still in conformity with specifications. These values can only be reduced if at the same time the total bottom overtravel (OFG) is reduced to correspond the formula.
- 2.1 Example for determination of the total stroke of the cylinder**
- |                              |   |
|------------------------------|---|
| Travel                       | FH = 9,2 m  |
| Telescopic cylinder          | = 3-stage acc. to EN 81.2                           |
| Speed                        | = 0,63 m/s  |
| Reserve stroke               | RH = 640 mm (see sheet 2PX0262 pag. 5, chapter 3.0) |
| Total stroke of the cylinder | GH = FH+RH = 9200 + 640 = 9840 mm                   |



Con riserva di modifica / Subject to change / Änderungen vorbehalten / Sous réserve de modification

**I G B D F**

**C.O.R.M. S.p.A.**  
componenti oleodinamici  
per ascensori e montacarichi

**Synchronized Telescopic Cylinder  
Type 3 PL**

Dis.	S. A.	25/09/1997
Contr.		07/06/2002
Visto		

Sost. Il 2PX0262 a

Sost dal

**DOCUMENTAZIONI TECNICHE**

**2 P X 0 2 6 2 b** pag. 4  
di 5

3.0 Tables of the minimum overtravels required acc. to EN 81.2 (including the minimum additions, but without considering differences in travel caused by structural inaccuracies).

2-stage cylinder				3-stage cylinder			
travel speed m/s	UFG* mm	OFG mm	RH mm	travel speed m/s	UFG* mm	OFG mm	RH mm
v < 0,5	145	195	340	v < 0,5	145	345	490
0,5 ≤ v < 0,85	195	245	440	0,5 ≤ v < 0,85	195	445	640
v ≥ 0,85	245	295	540	v ≥ 0,85	245	545	790

\* for calculation purposes the buffer stroke was assumed to be 65 mm acc. to EN 81.2.  
Deviations from this value should be considered separately.

#### 4.0 Division of the differences caused by structural inaccuracies (BD)

If the travel distance from floor to floor increases or decreases, the total bottom overtravel (UFG) and the total top overtravel (OFG) should be calculated acc. to the following formula:

3PL - 2-stage	3PL - 3-stage
$UFG = \frac{GH - FH - OS}{2}$	$UFG = \frac{GH - FH - OS}{3}$
OFG = UFG + OS	OFG = UFG x 2 + OS

If the travel distance (FH) is to be greater than originally planned, the structurally caused difference (BD) must under no circumstances be deducted solely from the "total top overtravel" (OFG) because otherwise the lift car, would no longer be able to reach the top floor, after a few travels.

#### 5.0 To ensure synchronization of the piston rod, an automatic bottom floor homing device is required as described below.

In the Federal Republic of Germany an automatic homing device (max. 15 min. after a travel, with doors closed) to the lowermost stopping position is required, in conformity with TRA 265.5 and in conjunction with TRA 247.1, item 6. Lift manufacturers whose national specifications do not require such an automatic homing device, have to provide for this nonetheless in order to ensure synchronization of the cylinder rods.

#### 6.0 As for the rest, the relevant and local regulations have to be observed, concerning the operation of hydraulic lift systems and the prevention of accidents.

## How to use the selection tables

Speed, Pressure and piston rod Diameter are given.

With the help of these diagrams we'll find out the right pump and motor unit. Let's see how it works with an example. We want to find the pump motor unit for a telescopic cylinder 63/2 for a speed of approximately 0,63 m/s. Let's the maximum static pressure of the lift be 45 bar.

Find on the left column on the page 1 of the sheet 2PX0264-B the line with  $63/2$  on it. On that line we'll find two values of speed: 0,57 and 0,68. since the values are nominal, the real speed will be lower, especially because the pressure is rather high. We'll choose 0,68.

The column of the value 0,68 is the one of the pump type GR45-180. The pump has a nominal flow rate of 180 l/min. Right under the table of the piston/pumps there is the table pumps/dinamic pressures.

The static maximum pressure of 45 bar must be increased by a gross value of 5% to 15% in order to obtain the dynamic value. how much to increase comes from how long is the hydraulic circuits, how many curves there are, the size of the piping related to the flow rate. In normal conditions, the value of maximum static pressure can be increased by 10% and the unknown factors will fall inside the capability of the motor to face a 30% increase in power demand.

Corresponding to the column of the 180 l/min pump and to the line of the pressure 50 bar ( $45 \times 1.1 = 49.5$  bar) we can read a power needed of 18 kW. The first bigger motor size available is 20kW.

Our choice will be a motor with nominal power 20kW and a pump GR45- 180L.

For a more precise calculation please contact our office.

lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 2 stage

Motor: 50Hz 2 poles, n= 2750 rpm		Cylinder Direct Acting, pump size [l/min]										Lift speed, v[m/s]																					
type	A [cm <sup>2</sup> ] deg [mm]	GR20				GR25				GR32				GR40				GR45				GR55				GR60				GR70			
		8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200			
35/2	.15	0.09	0.13	<b>0.17</b>	<b>0.22</b>	<b>0.26</b>	<b>0.28</b>	<b>0.34</b>	0.39	<b>0.50</b>	<b>0.62</b>	<b>0.84</b>	1.12																				
42/2	.44																																
42/2	.21																																
50/2	.52	0.06	0.09	0.12	<b>0.16</b>	<b>0.18</b>	<b>0.20</b>	<b>0.24</b>	0.28	0.35	<b>0.43</b>	0.59	<b>0.79</b>	<b>0.99</b>	1.18																		
50/2	.29																																
50/2	.67	0.05	0.07	0.09	0.11	0.13	0.14	0.17	0.20	0.26	0.31	0.43	0.57	<b>0.71</b>	0.85	1.02	1.19																
<b>63/2</b>	<b>.44</b>																																
70/2	.60																																
70/2	.87																																
85/2	.05																																
85/2	.104																																
100/2	.118																																
120/2	.122																																
120/2	.170																																
140/2	.147																																
140/2	.234																																
170/2	.173																																
170/2	.340																																
170/2	.208																																
200/2	.488																																
200/2	.249																																
min power needed [kW]																																	
l/min		8	12	15	20	23	25	30	35	45	55	75	100	125	150	<b>180</b>	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200			
max. din. Pressure		10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.6	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.			
		20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	26.	28.6	34.	43.	52.			
		30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.		
		40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.	106.		
		<b>50</b>	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	<b>12.8</b>	<b>14.0</b>	<b>18.</b>	<b>21.</b>	<b>25.</b>	<b>28.</b>	<b>30.</b>	<b>35.</b>	<b>38.</b>	<b>46.</b>	<b>52.</b>	<b>55.4</b>	<b>63.</b>	<b>69.</b>	<b>84.</b>	<b>105.</b>	<b>126.</b>		
		60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	34.	33.	35.9	41.5	46.	54.	62.	68.	75.	80.	100.	125.	149.		
		70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	36.	41.	49.	53.	62.	71.	75.6	86.	95.	116.	144.	172.		

## lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 2 stage.

Motor 50Hz 2 poles. n= 2750 rpm

Cylinder Direct Acting. Lift speed. v[m/s]

type	A [cm <sup>2</sup> ] deq [mm] [l/min]	pump size	pump size [l/min]												Cylinder Direct Acting. Lift speed. v[m/s]																	
			GR20				GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80			
			8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200	
35/2	15		0.09	0.13	0.17	0.22	0.26	0.28	0.34	0.39	0.50	0.62	0.84	1.12																		
	44																															
42/2	21		0.06	0.09	0.12	0.16	0.18	0.20	0.24	0.28	0.35	0.43	0.59	0.79	0.99	1.18																
	52																															
50/2	29		0.05	0.07	0.09	0.11	0.13	0.14	0.17	0.20	0.26	0.31	0.43	0.57	0.71	0.85	1.02	1.19														
	61																															
63/2	44		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.17	0.21	0.28	0.38	0.47	0.57	0.68	0.80	0.95	1.03	1.14												
	75																															
70/2	60		0.06	0.09	0.12	0.16	0.18	0.20	0.24	0.28	0.35	0.43	0.59	0.79	0.99	1.18																
	87																															
85/2	85		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.17	0.21	0.28	0.38	0.47	0.57	0.68	0.80	0.95	1.03	1.14												
	104																															
100/2	118		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.14										
	122																															
120/2	170		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.14										
	147																															
140/2	234		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.14										
	173																															
170/2	340		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.14										
	208																															
200/2	488		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.14										
	249																															

min power needed [kW]

	I/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
max. din. Pressure [bar]	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	18.	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.	84.		
	60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	30.	33.	35.9	41.5	46.	54.	62.	66.	75.	80.			
	70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	38.	41.	48.	53.	62.	71.	75.6	86.				

Nominal power available for motors [kW ]

## lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 3 stage.

Motor 50Hz 2 poles. n= 2750 rpm

Cylinder Direct Acting. Lift speed. v[m/s]

pump size  
[l/min]

pist. Size	A [cm <sup>2</sup> ]  d <sub>eq</sub> [mm]	pump size [l/min]	GR20					GR25				GR32				GR40				GR45				GR55				GR60		GR70				GR80		
			8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200					
35/3	23		0.06	0.09	0.11	0.14	0.17	0.18	0.22	0.25	0.32	0.40	0.54	0.72	0.90	1.08	1.30																			
	54																																			
42/3	33		0.06	0.08	0.10	0.12	0.13	0.15	0.18	0.23	0.28	0.38	0.50	0.63	0.76	0.91	1.06	1.26																		
	65																																			
50/3	47		0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.16	0.20	0.27	0.36	0.45	0.54	0.64	0.75	0.89	0.96	1.07	1.18															
	77																																			
63/3	67		0.03	0.04	0.05	0.06	0.06	0.07	0.09	0.11	0.14	0.19	0.25	0.31	0.37	0.45	0.52	0.62	0.67	0.75	0.82	0.95	1.10	1.25												
	92																																			
70/3	92		0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.08	0.10	0.14	0.18	0.23	0.27	0.33	0.38	0.45	0.49	0.54	0.60	0.69	0.80	0.91	0.98	1.09	1.20									
	108																																			
85/3	132																																			
	130																																			
100/3	187																																			
	154																																			
120/3	264																																			
	184																																			
140/3	378																																			
	219																																			

min power needed [kW]

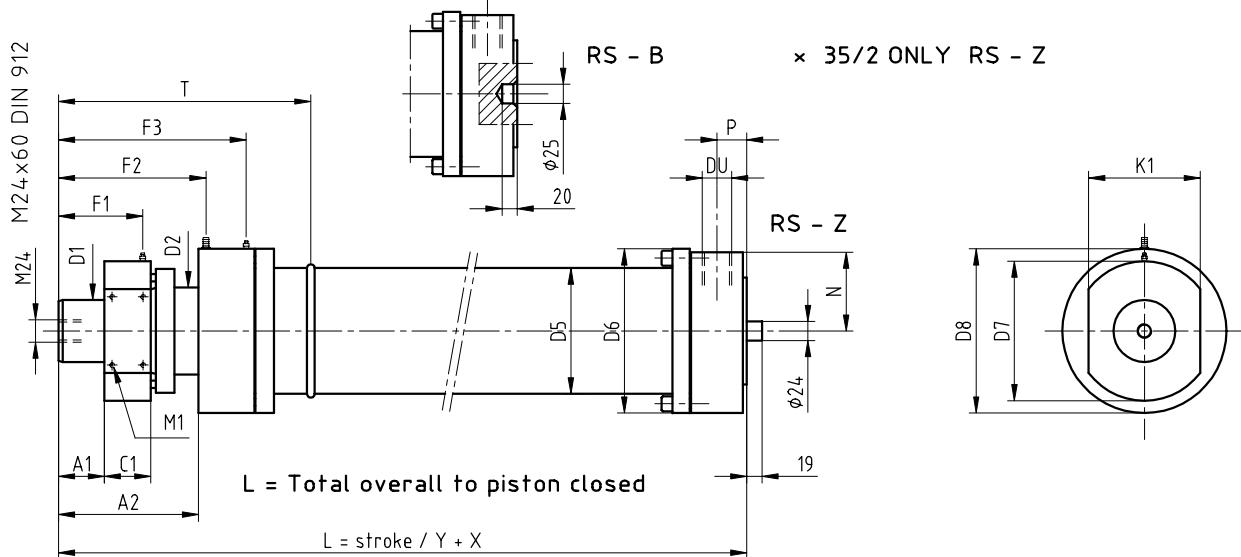
I/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200		
10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.		
20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.		
30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.			
40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.				
50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	18.	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.					

Nominal power available for motors

[kW ]

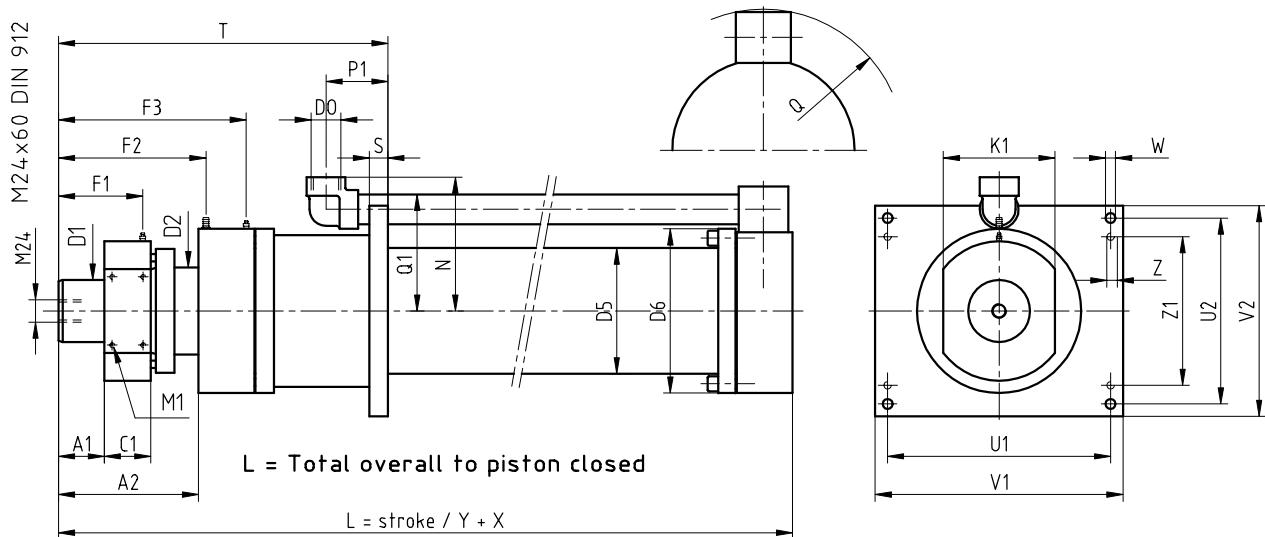
1.5 2 3 4.4 6 7.7 9.5 12 15 16 20 24 29 33 40 47 60 77

Synchronized telescopic 2 stage cylinder  
acc. to TRA 200 and EN 81.2 - Side Ram System



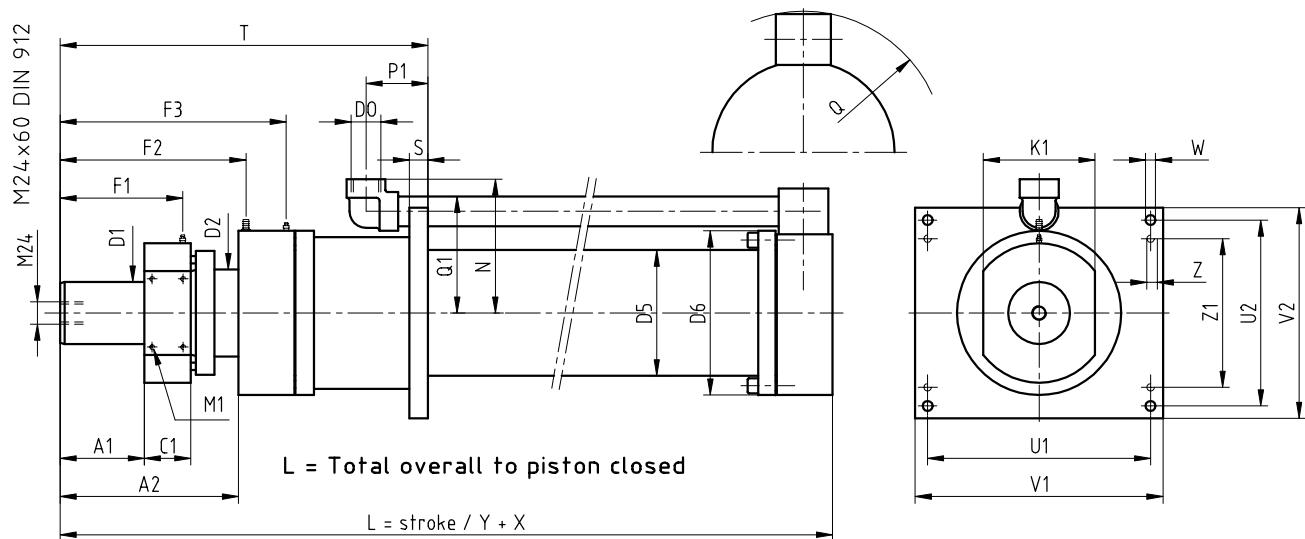
Typ	3 PL - RS Z / B										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	26	26	26	26	26	26	40	40	40	40	40
A2	120	120	120	120	125	130	155	160	175	173	180
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88,9	95	121	139,7	168,3	193,7	244,5	273	323,9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D7	110	125	132	150	165	185	225	265	295	340	400
D8	110	130	145	165	200	220	260	315	350	400	470
DU	G 3/4"	G 1"	G 1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	83	102	112	122	117	117
F2	133	133	133	133	138	143	169	182	196	194	201
F3	177	177	177	177	187	192	227	242	262	265	272
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	50	58	65	80	95	106	123	151	170	196	230
P	37	47	47	47	50	50	50	50	50	50	50
T	280	280	280	280	280	280	330	350	350	350	400
X	415	441	441	458	472	480	592	587	686	685	800
Y	1,898	1,980	1,930	1,990	1,898	1,997	1,998	1,997	1,997	1,998	1,995
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	21,2	29,9	36,4	55,0	77,9	100,3	151,4	233,6	320,0	502,5	772,6
m HM (kg)	13,5	15,9	19,1	30,6	44,2	61,8	56,6	100,0	106,6	140,2	226,5
$p \text{ stat. : max static pressure ( bar ) acc. to EN 81 - 2 / TRA 200}$											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

Synchronized telescopic 2 stage cylinder without yoke guide  
 acc. to EN 81.2 - Central Direct System



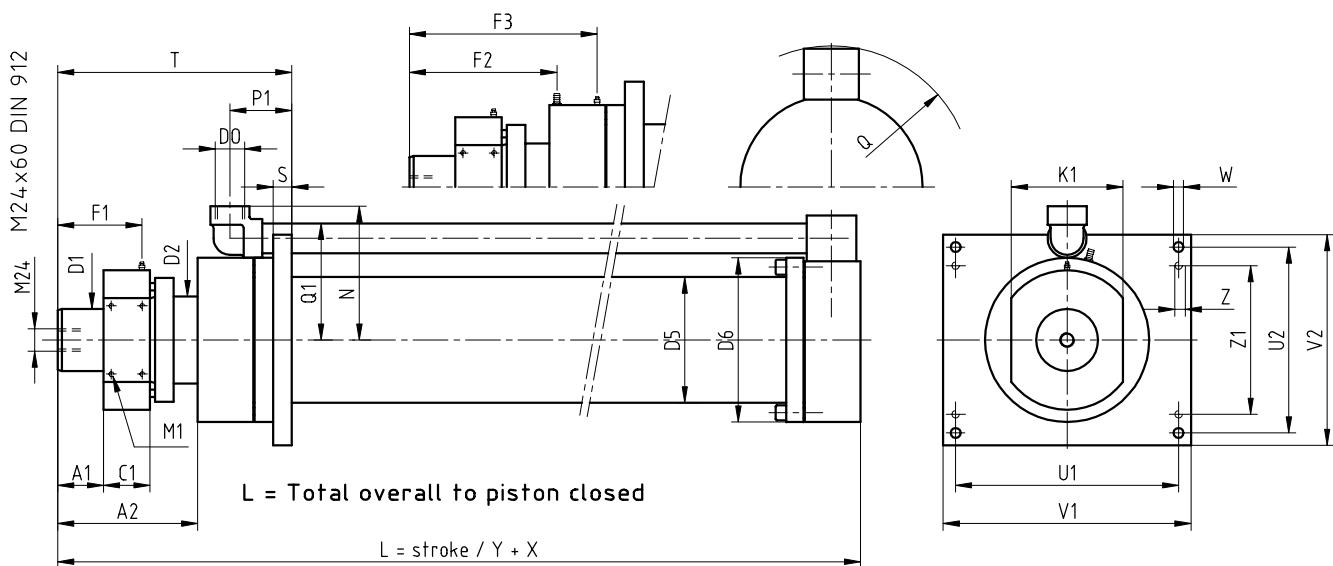
Typ	3PL - VE-B/X0										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	26	26	26	26	26	26	40	40	40	40	40
A2	120	120	120	120	125	130	155	160	175	173	180
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88, 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D0	G 3/4"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	83	102	112	122	117	117
F2	133	133	133	133	138	143	169	182	196	194	201
F3	177	177	177	177	187	192	227	242	262	265	272
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	110	130	137	169	184	195	232	281	300	315	365
P1	85	86	86	100	100	101	150	150	150	150	160
Q	104	128	134	159	174	184	201	239	258	284	317
Q1 max	89	107	115	142	157	168	205	251	270	285	335
S	20	20	20	30	30	30	35	35	40	40	45
T	500	500	500	500	500	500	500	580	580	580	580
U1	200	200	200	230	260	300	400	460	500	530	630
U2	160	160	160	180	210	260	400	460	500	530	630
V1	240	240	240	270	300	340	470	560	600	630	730
V2	200	200	200	220	250	300	470	560	600	630	730
W	16	16	16	16	16	16	19	24	24	28	28
X	415	441	441	458	472	480	592	587	686	685	800
Y	1,898	1,980	1,930	1,990	1,898	1,997	1,998	1,997	1,997	1,998	1,995
Z	M12	M12	M12	M12	M12	M16	M16	M16	M16	M20	
Z1	100	100	100	120	150	200	320	380	400	430	530
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	37, 4	50, 1	58, 2	83, 3	114, 2	150, 5	231, 9	342, 4	462, 6	671, 6	992, 3
m HM (kg)	14, 9	17, 7	20, 9	33, 8	47, 5	65, 0	59, 8	104, 6	111, 2	144, 8	231, 1
p stat. : max static pressure ( bar ) acc. to EN 81 - 2											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

Synchronized telescopic 2 stage cylinder with yoke guide  
 for 2 stage - acc. to EN 81.2 - Central Direct System



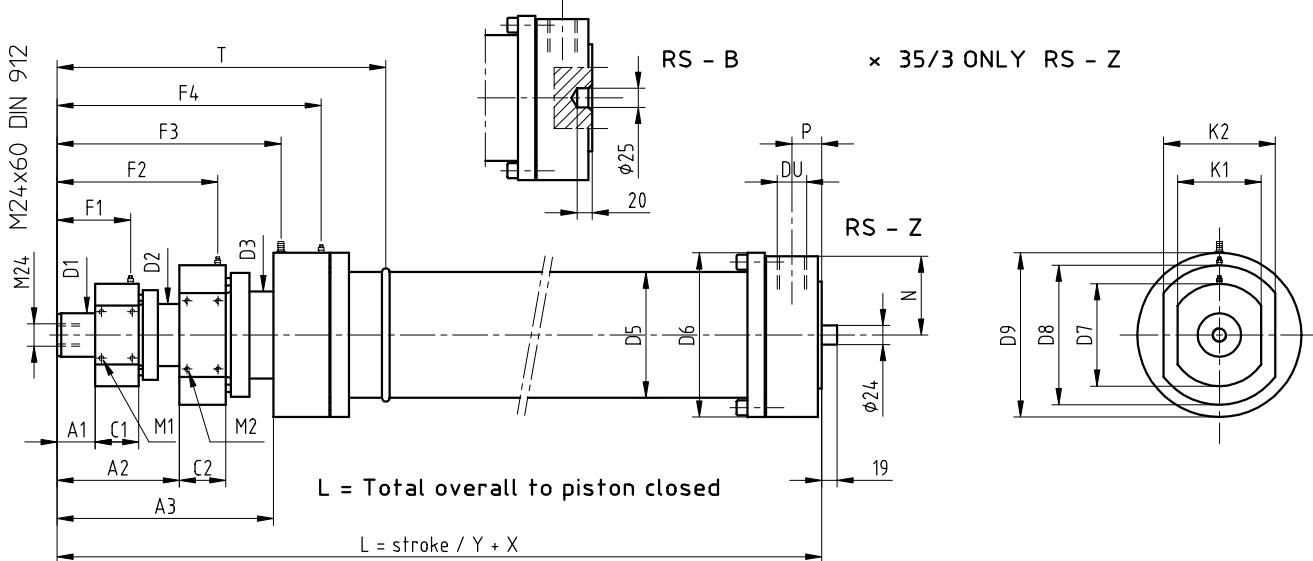
Typ	3PL - VE-B/Y2/Z2										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	300	300	300	300	300	300	300	300	300	300	300
A2	394	394	394	394	399	404	415	420	435	433	440
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88, 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D0	G 3/4"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	357	357	357	357	357	357	362	372	382	377	377
F2	407	407	407	407	412	417	429	442	456	454	461
F3	451	451	451	451	461	466	487	502	522	525	532
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	110	130	137	169	184	195	232	281	300	315	365
P1	85	86	86	100	100	101	150	150	150	150	160
Q	104	128	134	159	174	184	201	239	258	284	317
Q1 max	89	107	115	142	157	168	205	251	270	285	335
S	20	20	20	30	30	30	35	35	40	40	45
T	870	870	870	870	870	870	875	885	900	900	900
U1	200	200	200	230	260	300	400	460	500	530	630
U2	160	160	160	180	210	260	400	460	500	530	630
V1	240	240	240	270	300	340	470	560	600	630	730
V2	200	200	200	220	250	300	470	560	600	630	730
W	16	16	16	16	16	16	19	24	24	28	28
X	689	715	715	732	746	754	852	847	946	945	1060
Y	1,898	1,980	1,930	1,990	1,898	1,997	1,998	1,997	1,997	1,998	1,995
Z	M12	M12	M12	M12	M12	M16	M16	M16	M16	M20	
Z1	100	100	100	120	150	200	320	380	400	430	530
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	43,2	58,0	68,0	96,1	130,9	175,5	253,6	374,9	488,4	718,8	1033,3
m HM (kg)	14,9	17,7	20,9	33,8	47,5	65,0	59,8	104,6	111,2	144,8	231,1
p stat. : max static pressure ( bar ) acc. to EN 81 - 2											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

Synchronized telescopic 2 stage cylinder with/without yoke guide  
 acc. to TRA 200 - Central Direct System



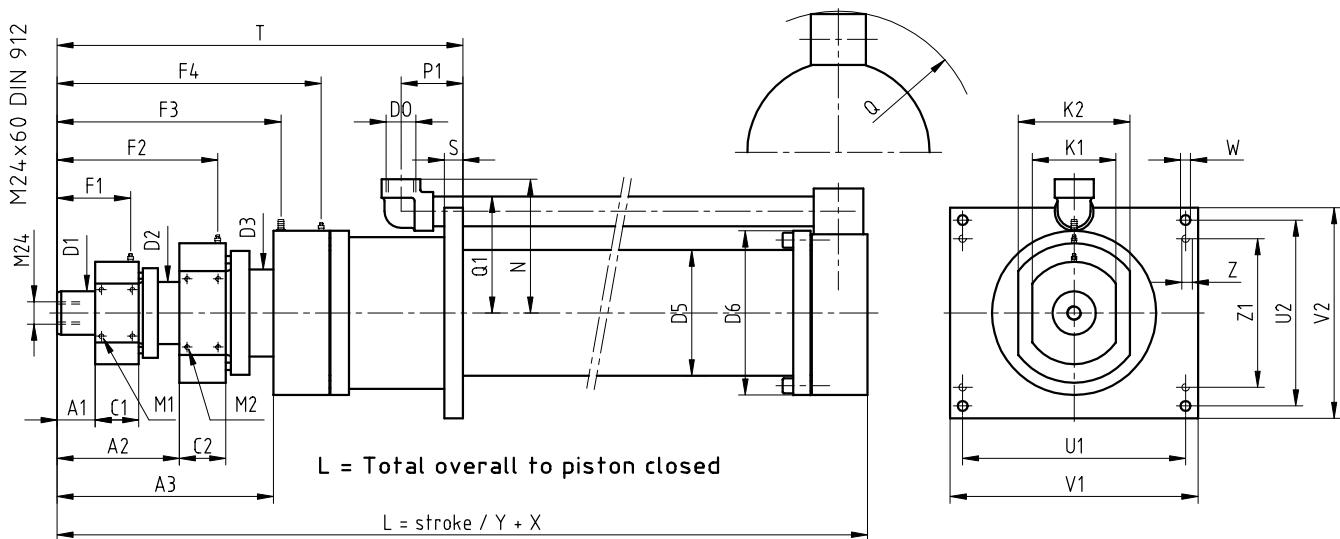
Typ	3PL - VT B										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	26	26	26	26	26	26	40	40	40	40	40
A2	120	120	120	120	125	130	155	160	175	173	180
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88, 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D0	G 3/4"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	83	102	112	122	117	117
F2	133	133	133	133	138	143	169	182	196	194	201
F3	177	177	177	177	187	192	227	242	262	265	272
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12	M12
N	110	130	137	169	184	195	232	281	300	315	365
P1	85	86	86	100	100	101	150	150	150	150	160
Q	104	128	134	159	174	184	201	239	258	284	317
Q1 max	89	107	115	142	157	168	205	251	270	285	335
S	20	20	20	30	30	30	35	35	40	40	45
T	234	235	234	244	260	265	309	330	345	415	430
U1	200	200	200	230	260	300	400	460	500	530	630
U2	160	160	160	180	210	260	400	460	500	530	630
V1	240	240	240	270	300	340	470	560	600	630	730
V2	200	200	200	220	250	300	470	560	600	630	730
W	16	16	16	16	16	16	19	24	24	28	28
X	415	441	441	458	472	480	592	587	686	685	800
Y	1,898	1,980	1,930	1,990	1,898	1,997	1,998	1,997	1,997	1,998	1,995
Z	M12	M12	M12	M12	M12	M16	M16	M16	M16	M16	M20
Z1	100	100	100	120	150	200	320	380	400	430	530
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	29,1	39,0	45,5	70,7	96,6	123,0	207,3	311,7	420,0	622,0	942,7
m HM (kg)	14,9	17,7	20,9	33,8	47,5	65,0	59,8	104,6	111,2	144,8	231,1
p stat. : max static pressure ( bar ) acc. to TRA 200											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

Synchronized telescopic 3 stage cylinder  
acc. to TRA 200 and EN 81.2 - Side Ram System



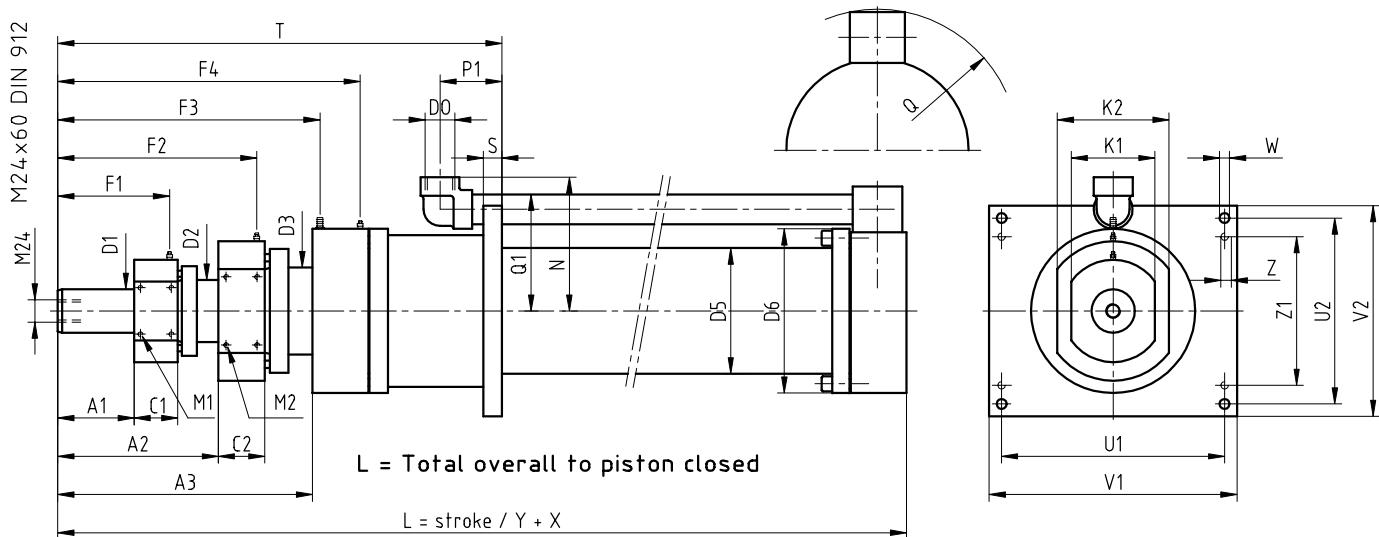
Typ	3 PL - RS Z / B								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	26	26	26	26	26	40	40	40	40
A2	120	120	120	120	125	144	155	160	175
A3	222	223	217	220	240	256	280	293	315
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101,6	127	146	177,8	203	244,5	298,5	355,6	419
D6	150	175	200	228	265	310	360	435	500
D7	110	125	132	150	165	185	225	265	295
D8	135	150	165	185	225	250	295	340	400
D9	145	165	200	220	265	310	360	435	500
DU	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	97	102	112	122
F2	177	177	177	177	182	206	227	242	257
F3	235	236	230	233	253	272	294	314	336
F4	279	285	279	282	317	323	362	385	407
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	68	80	93	105	127	147	175	214	245
P	40	47	47	50	47	50	50	50	55
T	380	380	380	380	400	420	470	500	650
X	530	551	565	571	600	700	783	833	935
Y	2,879	2,976	2,843	2,982	2,883	2,993	2,970	2,995	2,972
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	42,0	59,5	83,7	111,3	161,9	245,0	383,5	594,1	889,8
m HM (kg)	12,2	19,1	25,7	36,5	47,5	65,1	91,3	125,0	172,9
p stat. : max static pressure ( bar ) acc. to EN 81 - 2 / TRA200									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

Synchronized telescopic 3 stage cylinder without yoke guide  
 acc. to EN 81.2 - Central Direct System



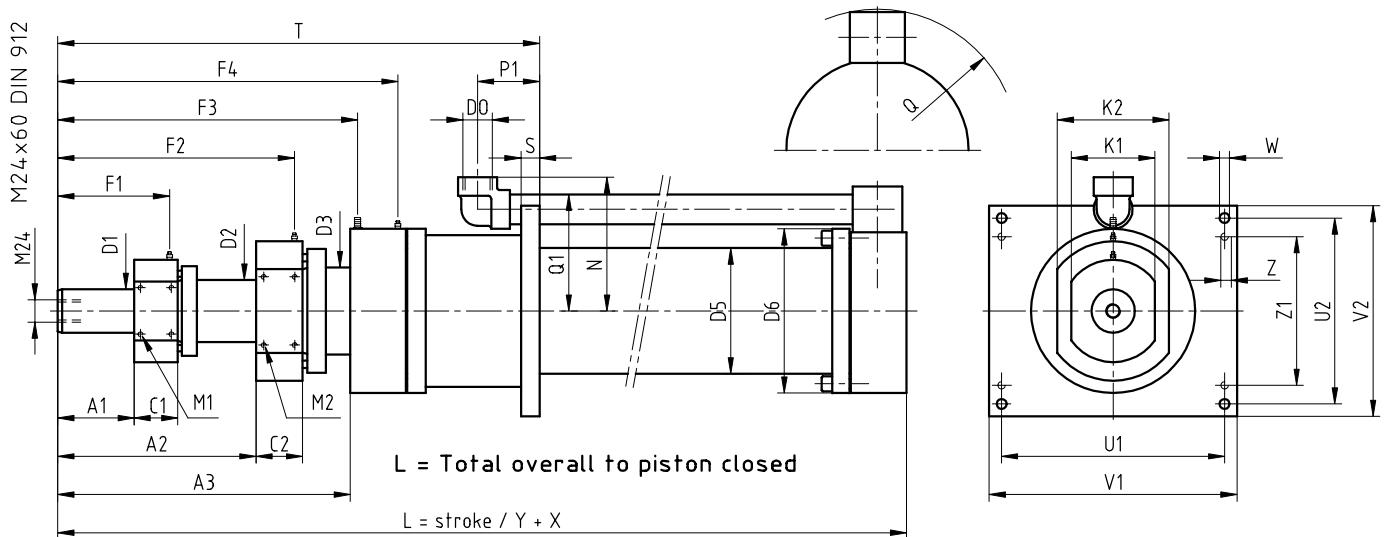
Typ	3 PL - VE-B/X0								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	26	26	26	26	26	40	40	40	40
A2	120	120	120	120	125	144	155	160	175
A3	222	223	217	220	240	256	280	293	315
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101,6	127	146	177,8	203	244,5	298,5	355,6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	97	102	112	122
F2	177	177	177	177	182	206	227	242	257
F3	235	236	230	233	253	272	294	314	336
F4	279	285	279	282	317	323	362	385	407
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	500	500	500	500	500	500	510	680	680
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	530	551	565	571	600	700	783	833	935
Y	2,879	2,976	2,843	2,982	2,883	2,993	2,970	2,995	2,972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	56,7	81,9	116,0	147,2	202,4	341,1	496,4	792,5	1082,2
m HM (kg)	13,4	21,2	27,9	38,7	49,7	68,2	94,4	128,1	176,0
p stat. : max static pressure ( bar ) acc. to EN 81 - 2									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

Synchronized telescopic 3 stage cylinder with yoke guide  
 for 2 stage - acc. to EN 81.2 - Central Direct System



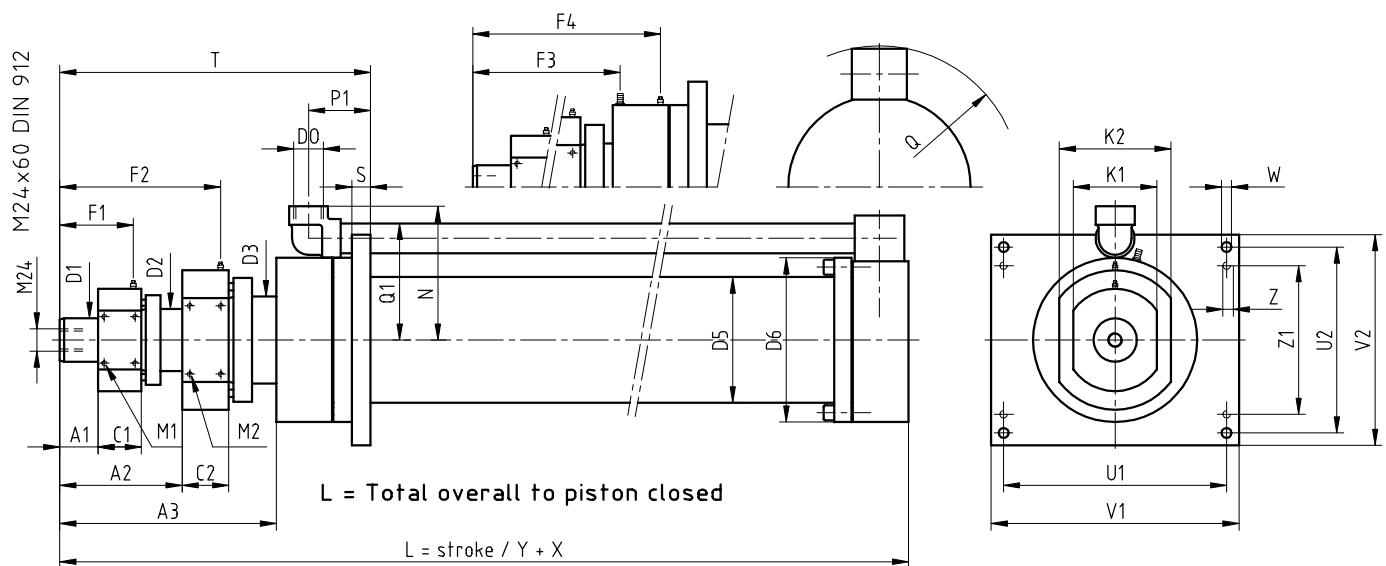
Typ	3 PL - VE-B/Y2/Z2								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	300	300	300	300	300	300	300	300	300
A2	394	394	394	394	399	404	415	420	435
A3	496	497	491	494	514	516	540	553	575
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101,6	127	146	177,8	203	244,5	298,5	355,6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	357	357	357	357	357	357	362	372	382
F2	451	451	451	451	456	466	487	502	517
F3	509	510	504	507	527	532	554	574	596
F4	553	559	553	556	591	583	622	645	667
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	870	870	870	870	870	870	885	940	940
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	804	825	839	845	874	960	1043	1093	1195
Y	2,879	2,976	2,843	2,982	2,883	2,993	2,970	2,995	2,972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	63,5	90,7	130,4	164,3	222,3	373,2	533,7	802,2	1093,3
m HM (kg)	13,4	21,2	27,9	38,7	49,7	68,2	94,4	128,1	176,0
p stat. : max static pressure ( bar ) acc. to EN 81 - 2									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

Synchronized telescopic 3 stage cylinder with yoke guide  
 for 2 stage and 3 stage - acc. to EN 81.2 - Central Direct System



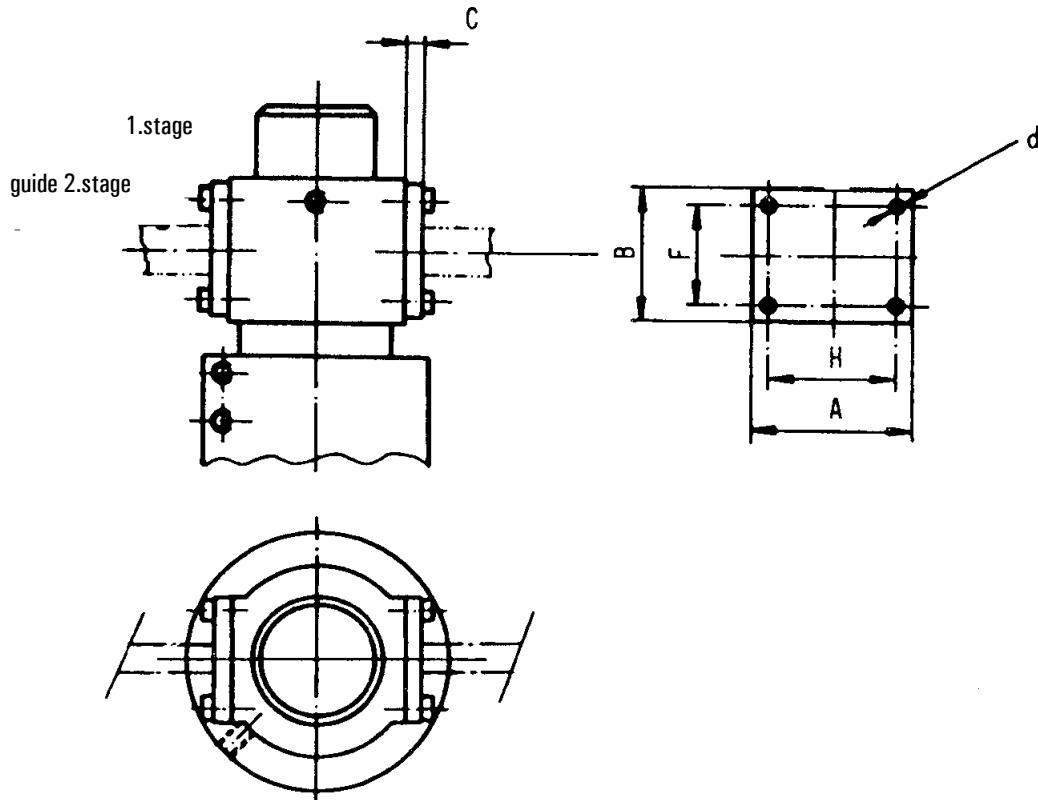
Typ	3 PL - VE-B/Y3/Z3								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	300	300	300	300	300	300	300	300	300
A2	670	670	670	670	670	670	675	685	695
A3	772	773	767	770	785	782	800	818	835
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101,6	127	146	177,8	203	244,5	298,5	355,6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	357	357	357	357	357	357	362	372	382
F2	727	727	727	727	727	732	747	767	777
F3	785	786	780	783	798	798	814	839	856
F4	829	835	829	832	862	849	882	910	927
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	1240	1240	1240	1240	1245	1245	1270	1300	1300
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	1080	1101	1115	1121	1145	1226	1303	1358	1455
Y	2,879	2,976	2,843	2,982	2,883	2,993	2,970	2,995	2,972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	72,8	103,1	149,1	187,0	252,4	417,6	509,2	863,5	1166,8
m HM (kg)	13,4	21,2	27,9	38,7	49,7	68,2	94,4	128,1	176,0
p stat. : max static pressure ( bar ) acc. to EN 81 - 2									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

Synchronized telescopic 3 stage cylinder with/without yoke guide  
 acc. to TRA 200 - Central Direct System



Typ	3 PL - VT B								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	26	26	26	26	26	40	40	40	40
A2	120	120	120	120	125	144	155	160	175
A3	222	223	217	220	240	256	280	293	315
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101,6	127	146	177,8	203	244,5	298,5	355,6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	97	102	112	122
F2	177	177	177	177	182	206	227	242	257
F3	235	236	230	233	253	272	294	314	336
F4	279	285	279	282	317	323	362	385	407
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	336	355	352	355	390	401	450	540	565
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	530	551	565	571	600	700	783	833	935
Y	2,879	2,976	2,843	2,982	2,883	2,993	2,970	2,995	2,972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	50,0	74,8	102,0	133,3	190,2	323,6	480,5	736,4	1048,8
m HM (kg)	13,4	21,2	27,9	38,7	49,7	68,2	94,4	128,1	176,0
p stat. : max static pressure ( bar ) acc. to TRA200									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

**Yoke plates for Telescopic Cylinders, 2 - stage  
Type 3PL**



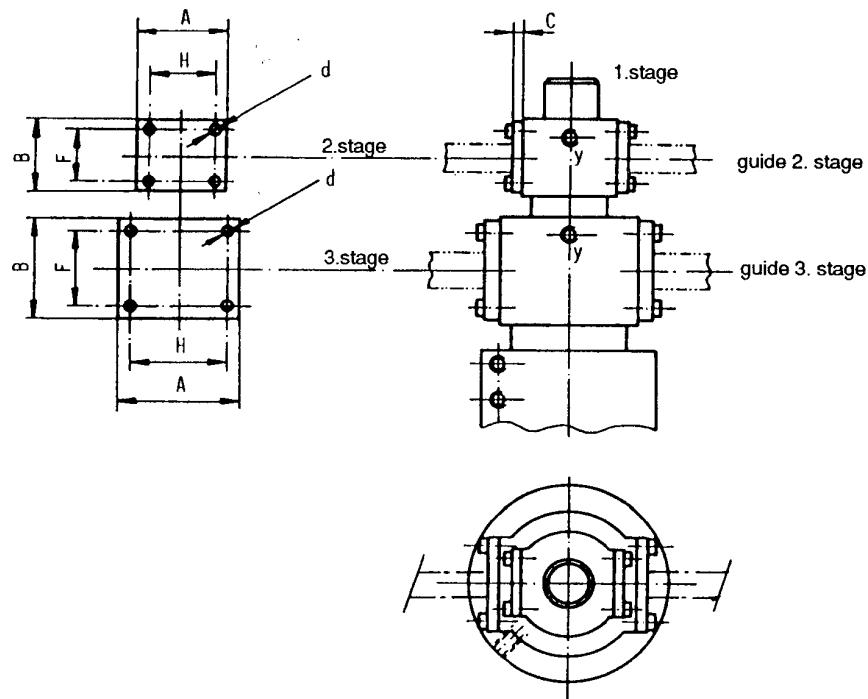
Screws for Yoke Plates :      M 8 x 25 for d = 10  
     M12 x 35 for d = 14

Type of Cylinder	Stage	Dimensions of Yoke Plate					
		A	B	C	F	H	d
3PL 35/2	2	60	70	10	50	40	10
3PL 42/2	2	80	70	10	50	60	10
3PL 50/2	2	85	70	10	50	65	10
3PL 63/2	2	100	70	10	50	80	10
3PL 70/2	2	95	70	10	50	75	10
3PL 85/2	2	105	70	10	50	85	10
3PL 100/2	2	135	70	10	50	110	10
3PL 120/2	2	150	80	15	60	115	14
3PL 140/2	2	150	80	15	60	115	14
3PL 170/2	2	170	80	15	60	140	14
3PL 200/2	2	210	80	15	60	180	14

All dimensions are given in mm

Yoke plates have to be ordered together with the cylinder (.... Z2 acc. to order code). The yoke plates incl. the screws will be delivered already mounted to the cylinder. The guide yoke is not part of supply.

**Yoke plates for Telescopic Cylinders, 3 - stage  
Type 3PL**

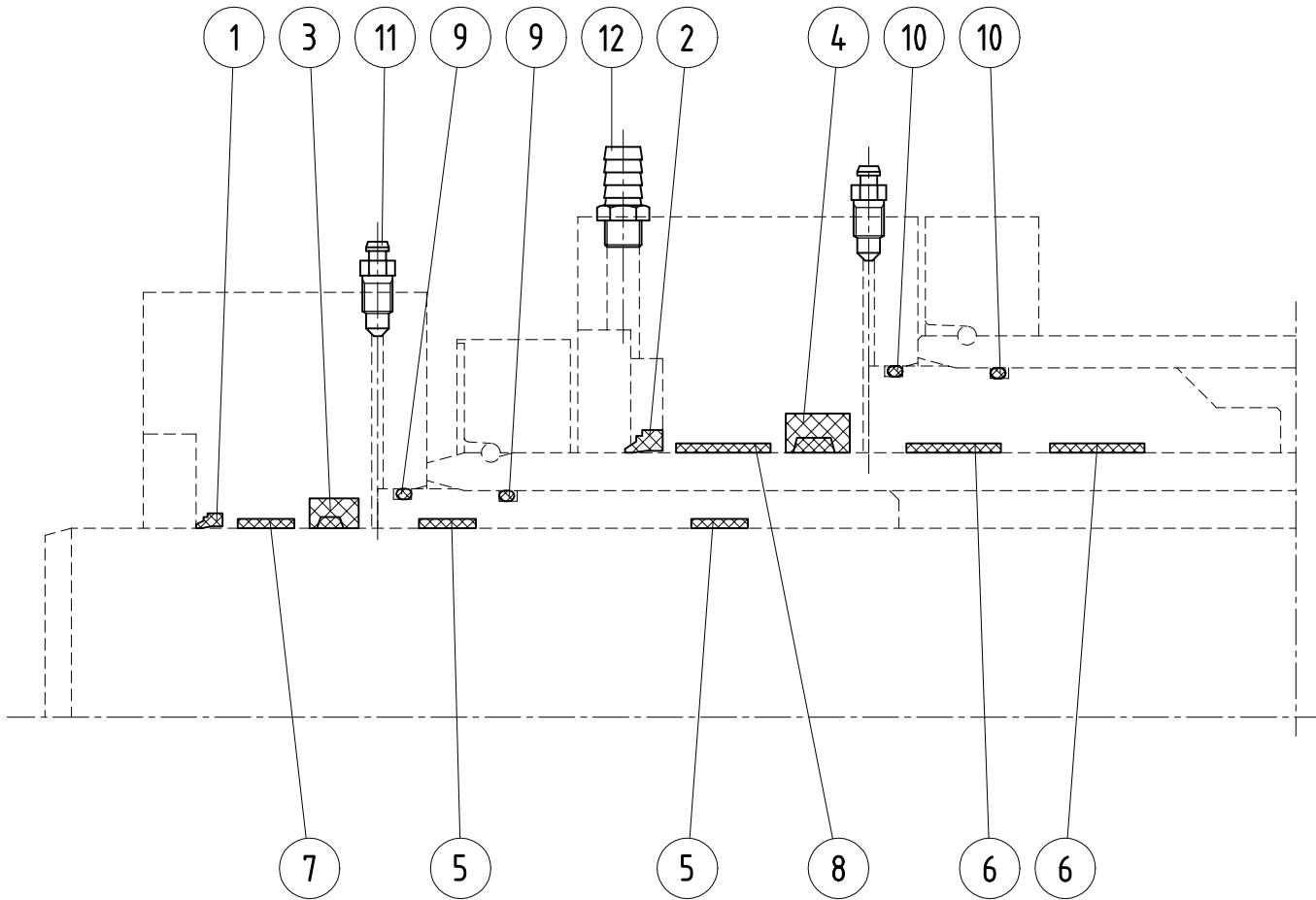


Screws for Yoke Plates : M 8 x 25 for d = 10  
M12 x 35 for d = 14

Type of Cylinder	Stage	Dimensions of Yoke Plate					
		A	B	C	F	H	d
3PL 35/3	2	60	70	10	50	40	10
	3	85	70	10	50	65	10
3PL 42/3	2	80	70	10	50	60	10
	3	100	70	10	50	80	10
3PL 50/3	2	85	70	10	50	65	10
	3	90	70	10	50	70	10
3PL 63/3	2	100	70	10	50	80	10
	3	105	70	10	50	85	10
3PL 70/3	2	95	70	10	50	75	10
	3	135	70	10	50	110	10
3PL 85/3	2	105	70	10	50	85	10
	3	135	70	10	50	110	10
3PL 100/3	2	135	70	10	50	110	10
	3	150	80	15	60	115	14
3PL 120/3	2	150	80	15	60	115	14
	3	170	80	15	60	140	14
3PL 140/3	2	150	80	15	60	115	14
	3	210	80	15	60	180	14

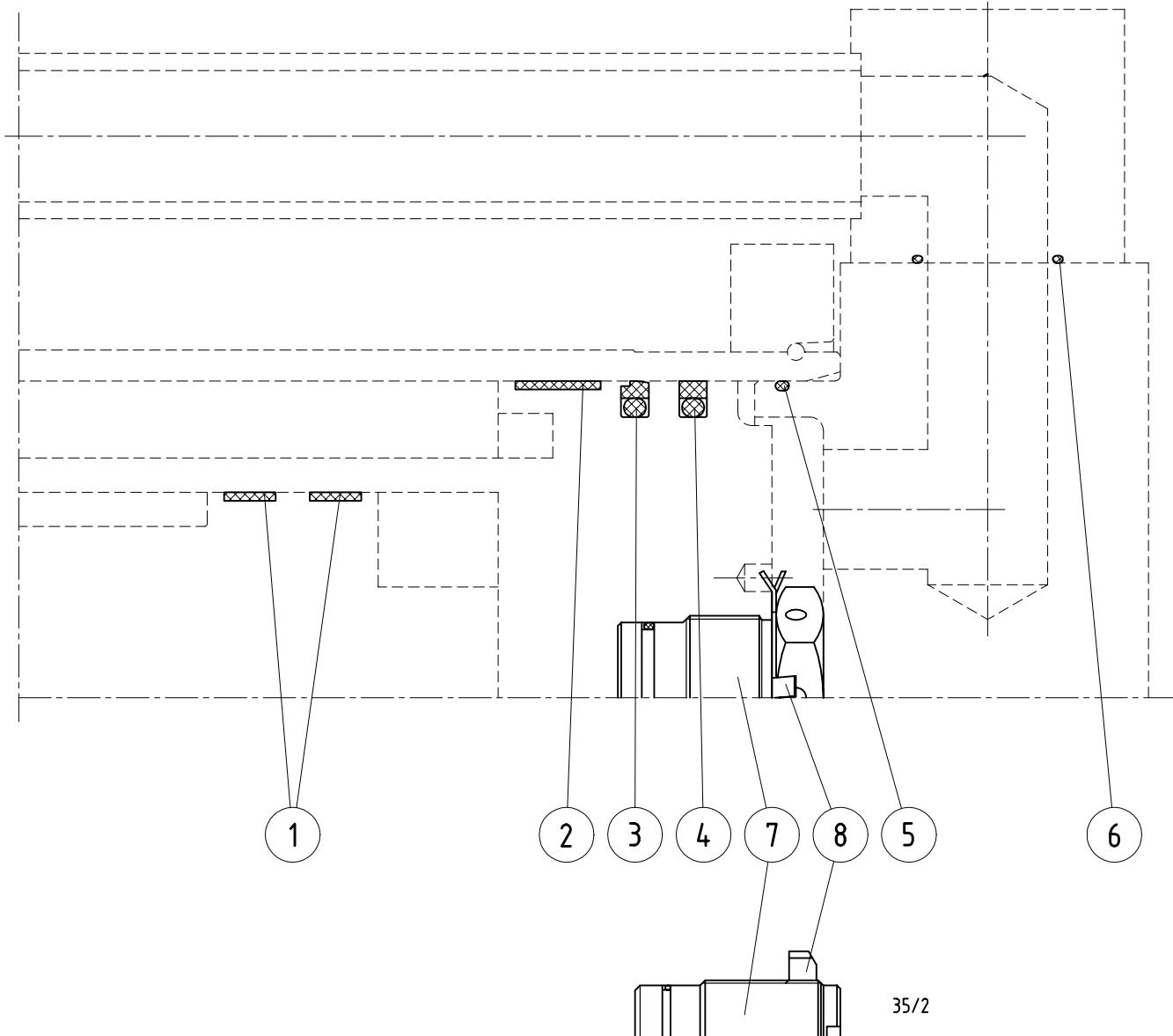
All dimensions are given in mm

Yoke plates have to be ordered together with the cylinder (.... Z2 or .... Z3 acc. to order code). The yoke plates incl. the screws will be delivered already mounted to the cylinder. The guide yoke is **not** part of supply.



	3 PL - RS - VE - VT										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
1	9 XQ 0361	9 XQ 0377	9 XQ 0365	9 XQ 0379	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165
2	9 XQ 0365	9 XQ 0380	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165	9 XQ 0169	9 XQ 0174
3	9 XQ 2253	9 XQ 2254	9 XQ 2200	9 XQ 2203	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2211	9 XQ 2221	9 XQ 2227
4	9 XQ 2200	9 XQ 2250	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234	9 XQ 2240	9 XQ 2247
5	9 XQ 2377	9 XQ 2302	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2379	9 XQ 2310	9 XQ 2314	9 XQ 2318	9 XQ 2324
6	9 XQ 2300	9 XQ 2378	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2324	9 XQ 2330	9 XQ 2338	9 XQ 2348
7	9 XQ 2377	9 XQ 2302	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2324	9 XQ 2330
8	9 XQ 2300	9 XQ 2378	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2382	9 XQ 2386	9 XQ 2383	9 XQ 2338	9 XQ 2348
9	9 XQ 5117	9 XQ 5121	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5246	9 XQ 5253	9 XQ 5259	9 XQ 5266	9 XQ 5273	9 XQ 5278
10	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5248	9 XQ 5253	9 XQ 5261	9 XQ 5267	9 XQ 5272	9 XQ 5278	9 XQ 5455	9 XQ 5465
11						9 YP 3201					
12						9 YP 3202					
1-10	3 PD 0170	3 PD 0208	3 PD 0171	3 PD 0172	3 PD 0173	3 PD 0174	3 PD 0175	3 PD 0176	3 PD 0177	3 PD 0178	3 PD 0179

<b>C.O.R.M. s.p.a.</b> COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI		PEZZI DI RICAMBIO PER PISTONI TELESCOPICI PARTS LIST FOR TELESCOPIC CYLINDERS ERSATZTEILE FUER TELESKOPZYLINDER PIECES DE RECHANGE POUR VERINS TELESCOPIQUES						Disegnato	Paolo G.	16-09-1998
3 PL/2						Controllato				
Nullaosta						Nullaosta				
Sost. il	2 PX 0276 a	DOCUMENTAZIONI TECNICHE				2	P	X	O 2 7 6 b	Pag. 1
Sost. dal										di 4



	3 PL - RS - VE - VT										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
1	9 XQ 2401	9 XQ 2402	9 XQ 2404	9 XQ 2406	9 XQ 2408	9 XQ 2429	9 XQ 2413	9 XQ 2415	9 XQ 2418	9 XQ 2421	9 XQ 2423
2	9 XQ 2405	9 XQ 2407	9 XQ 2409	9 XQ 2411	9 XQ 2413	9 XQ 2416	9 XQ 2430	9 XQ 2420	9 XQ 2423	9 XQ 2425	9 XQ 2427
3	9 XQ 2603	9 XQ 2604	9 XQ 2606	9 XQ 2609	9 XQ 2611	9 XQ 2614	9 XQ 2616	9 XQ 2618	9 XQ 2621	9 XQ 2623	9 XQ 2625
4	9 XQ 2703	9 XQ 2704	9 XQ 2706	9 XQ 2709	9 XQ 2711	9 XQ 2714	9 XQ 2716	9 XQ 2718	9 XQ 2721	9 XQ 2723	9 XQ 2725
5	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5248	9 XQ 5253	9 XQ 5261	9 XQ 5267	9 XQ 5272	9 XQ 5278	9 XQ 5455	9 XQ 5465
6	9 XQ 5579	9 XQ 5583	9 XQ 5583	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5600	9 XQ 5600	9 XQ 5600	9 XQ 5600
7	3 PL 5001										
8	9 XJ 0208										
1÷6	3 PD 0189	3 PD 0209	3 PD 0190	3 PD 0191	3 PD 0192	3 PD 0193	3 PD 0194	3 PD 0195	3 PD 0196	3 PD 0197	3 PD 0198

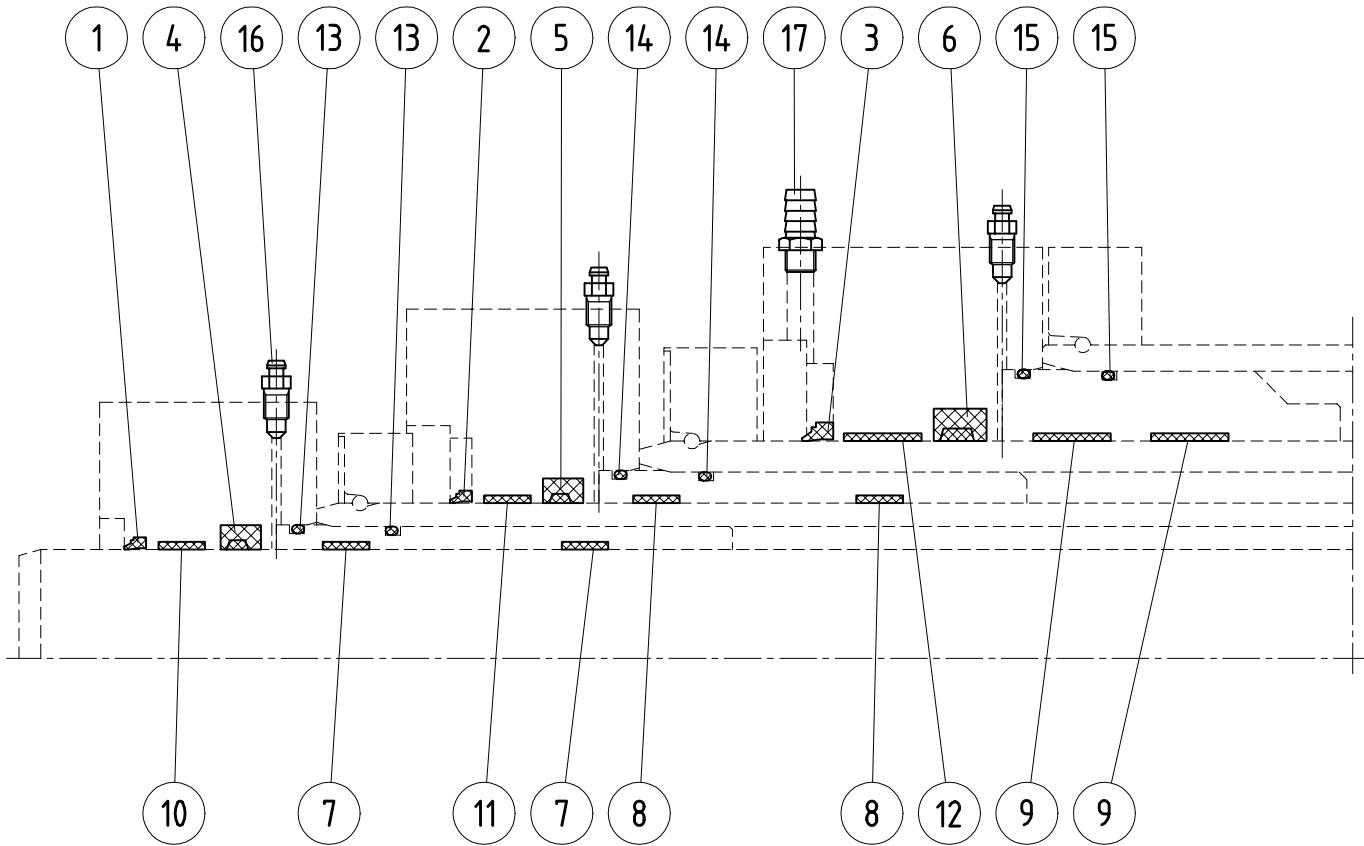
**C.O.A.M. s.p.a.**  
COMPONENTI OLEODINAMICI PER  
ASCENSORI E MONTACARICHI

PEZZI DI RICAMBIO PER PISTONI TELESCOPICI  
PARTS LIST FOR TELESCOPIC CYLINDERS  
ERSATZTEILE FUER TELESKOPZYLINDER  
PIECES DE RECHANGE POUR VERINS TELESCOPIQUES

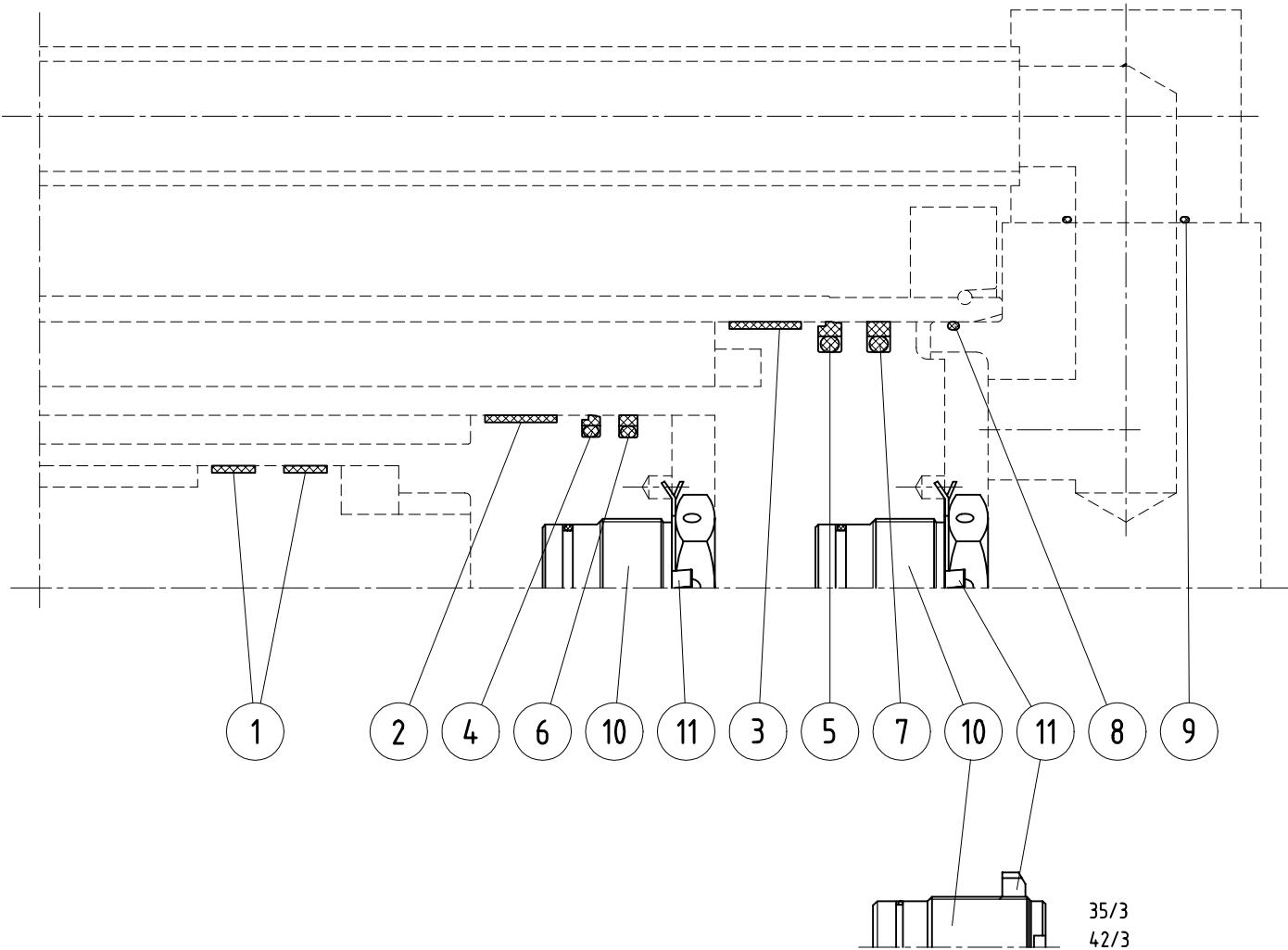
3 PL/2

Disegnato Paolo G. 16-09-1998  
Controllato \_\_\_\_\_  
Nullaosta \_\_\_\_\_

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	3 PL - RS - VE - VT								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
1	9 XQ 0361	9 XQ 0377	9 XQ 0365	9 XQ 0379	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374
2	9 XQ 0365	9 XQ 0380	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165
3	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165	9 XQ 0169	9 XQ 0174
4	9 XQ 2253	9 XQ 2254	9 XQ 2200	9 XQ 2203	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221
5	9 XQ 2200	9 XQ 2250	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234
6	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234	9 XQ 2240	9 XQ 2247
7	9 XQ 2377	9 XQ 2378	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2310	9 XQ 2314	9 XQ 2318
8	9 XQ 2300	9 XQ 2302	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2314	9 XQ 2318	9 XQ 2324	9 XQ 2330
9	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2324	9 XQ 2330	9 XQ 2338	9 XQ 2348
10	9 XQ 2377	9 XQ 2378	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318
11	9 XQ 2300	9 XQ 2302	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2382	9 XQ 2386	9 XQ 2383
12	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2386	9 XQ 2330	9 XQ 2338	9 XQ 2348
13	9 XQ 5117	9 XQ 5121	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5246	9 XQ 5253	9 XQ 5259	9 XQ 5266
14	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5248	9 XQ 5253	9 XQ 5261	9 XQ 5267	9 XQ 5272	9 XQ 5278
15	9 XQ 5244	9 XQ 5250	9 XQ 5256	9 XQ 5265	9 XQ 5269	9 XQ 5275	9 XQ 5281	9 XQ 5464	9 XQ 5456
16					9 YP 3201				
17					9 YP 3202				
1÷15	3 PD 0180	3 PD 0181	3 PD 0182	3 PD 0183	3 PD 0184	3 PD 0185	3 PD 0186	3 PD 0187	3 PD 0188



	3 PL - RS - VE - VT								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
1	9 XQ 2401	9 XQ 2402	9 XQ 2404	9 XQ 2406	9 XQ 2408	9 XQ 2429	9 XQ 2413	9 XQ 2415	9 XQ 2418
2	9 XQ 2405	9 XQ 2407	9 XQ 2409	9 XQ 2411	9 XQ 2413	9 XQ 2416	9 XQ 2430	9 XQ 2420	9 XQ 2423
3	9 XQ 2431	9 XQ 2412	9 XQ 2414	9 XQ 2417	9 XQ 2419	9 XQ 2422	9 XQ 2424	9 XQ 2426	9 XQ 2428
4	9 XQ 2603	9 XQ 2604	9 XQ 2606	9 XQ 2609	9 XQ 2611	9 XQ 2614	9 XQ 2616	9 XQ 2618	9 XQ 2621
5	9 XQ 2607	9 XQ 2610	9 XQ 2612	9 XQ 2615	9 XQ 2617	9 XQ 2620	9 XQ 2622	9 XQ 2624	9 XQ 2626
6	9 XQ 2703	9 XQ 2704	9 XQ 2706	9 XQ 2709	9 XQ 2711	9 XQ 2714	9 XQ 2716	9 XQ 2718	9 XQ 2721
7	9 XQ 2707	9 XQ 2710	9 XQ 2712	9 XQ 2715	9 XQ 2717	9 XQ 2720	9 XQ 2722	9 XQ 2724	9 XQ 2726
8	9 XQ 5244	9 XQ 5250	9 XQ 5256	9 XQ 5265	9 XQ 5269	9 XQ 5275	9 XQ 5281	9 XQ 5464	9 XQ 5456
9	9 XQ 5583	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5600	9 XQ 5600	9 XQ 5600	9 XQ 5600
10	3 PL 5001		3 PL 5000						
11	9 XJ 0208		3 PL 5035						
1+9	3 PD 0199	3 PD 0200	3 PD 0201	3 PD 0202	3 PD 0203	3 PD 0204	3 PD 0205	3 PD 0206	3 PD 0207

**C.O.A.M. S.p.A.**  
COMPONENTI OLEODINAMICI PER  
ASCENSORI E MONTACARICHI

PEZZI DI RICAMBIO PER PISTONI TELESCOPICI  
PARTS LIST FOR TELESCOPIC CYLINDERS  
ERSATZTEILE FUER TELESKOPZYLINDER  
PIECES DE RECHANGE POUR VERINS TELESCOPIQUES

Disegnato Paolo G. 16-09-1998  
Controllato  
Nullaosta

3 PL/3

Sost. il 2 PX 0276 a  
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