

Design and Development Doc

**Document No.: 900081-4** 

Page 1 / 36

Rev.: 4





 Design and Development
 Document No.: 900081-4
 Page 2 / 36

 Rev.: 4
 Rev.: 4





 Design and Development
 Document No.: 900081-4
 Page 3 / 36

 Rev.: 4
 Rev.: 4

# Addendum to LISEGA catalogue "Standard Supports 2010" in reference to Russian standard pipe dimensions - for nuclear application -

	23.07.2012	23.07.2012	23.07.2012
4	B. Timm	J. Bernert	Dr. H W. Lange
Rev.	established	checked	approved

#### List of revision

		_
4	Type 40 HL U-bolts added	20.07.2012 BT / JB / HWL
3	type 49 GS: lateral loads defined	22.03.2011 VDU / JB / HWL
2	small fixpoints completely new designed	31.08.2010 VDU / JB / HWL
1	small fixpoints added; special application Page 35/35 added; reduction factor for Temperature at Type 40 added; Loads of small clamp bases inreased	23.07.2010 VDU / JB / HWL
0	Cataloque established	18.12.2010 VDU / JB / HWL
Rev.	Description	Date / Name

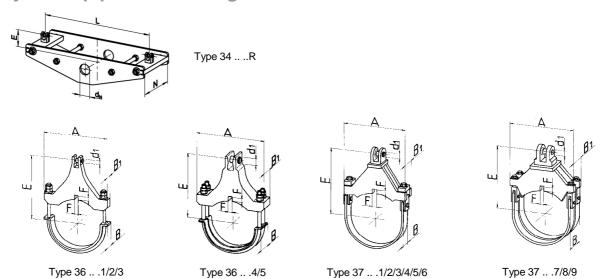


Design and Document No.: 900081-4

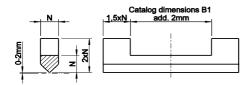
Page 4 / 36

Rev.: 4

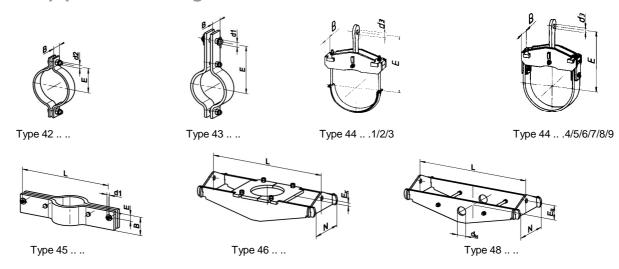
# Dynamic pipe surrounding elements



#### Lug dimensions for Type 36/37



# Static pipe surrounding elements





Design and Document No.: 900081-4

Development Page 5 / 36

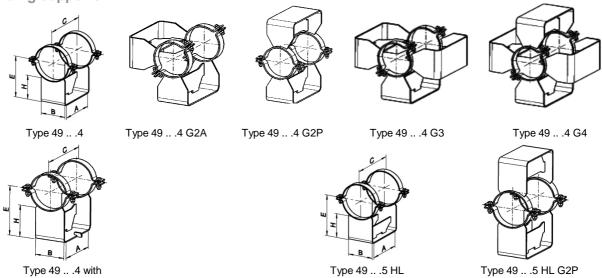
Rev.: 4

# Static pipe surrounding elements

Special applications see page 35/35

#### **Sliding supports**

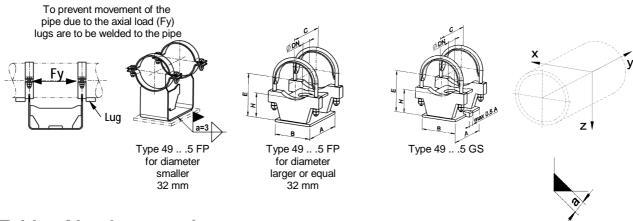
lift off restaints



#### **Fixed Points**

#### Guided Supports

**Load directions** 



#### Table of load case ratios

Permissible loads for other load cases than "Normal Operating Conditions" are: "permissible loads in selection tables" multiplied with the load ratio given in the following table.

			Load ratio for			
	Load condition	cyrillic	Seism	gory		
	Load Condition	abbreviation	1	2	3	
1	normal operation conditions	НУЭ	1.0	1.0	1.0	
2	anticipated operational occurences	ННУЭ	1.2	1.2	1.2	
3	normal operation conditions and operational basis earthquake	НУЭ+П3	1.2	1.5	n/a	
4	anticipated operational occurrences and operational basis earthquake	ННУЭ+П3	1.2	1.5	n/a	
5	Design basis accident	УПА	1.4	1.4	1.4	
6	normal operation conditions and safety shutdown earthquake	НУЭ+МРЗ	1.4	n/a	n/a	
7	anticipated operational occurrences and safety shutdown earthquake	ННУЭ+П3	1.4	n/a	n/a	
8	Design basis accident and safety shutdown earthquake	УПА+ПЗ	1.5	n/a	n/a	



| Design and | Document No.: 900081-4 | Page 6 / 36 | Rev.: 4

Selection table C	ם(	10	
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permissible load [kN] in each foot direction
Type 100 250 350°C
49 R1 64 G2P 0.60 0.6 0.50
49 R1 65 HL G2P 2.2 1.8 1.50
• For special application see page 35/35

Selection table			OD	10										
	permis	sible lo	ad [kN]											load-
Type	100		350°C							d2	Е	В	kg	group
42 R0 69	2.5	2.1	1.5							M8	20	25	0.1	C-D
			1 51 5 13											
T			ad [kN]							-14	_	_	l.a.	load-
Type 43 R0 69	100 2.5	250	350°C 1.7							d1 12	90	B 25	kg 0.2	group C-D
43 KU 09	2.0	2.4	1.7							12	90	23	0.2	C-D
	permis	sible lo	ad [kN]											load-
Type	100	250	350°C						d1	Е	В	L	kg	group
45 R0 61	3.3	2.7	1.8						12	25	50	250	1.5	C-4
45 R0 61	2.7	2.1	1.5						12	25	50	300	1.7	C-4
45 R0 61	2.0	1.6	1.1						12	25	50	400	2.2	C-4
45 R0 61	1.4	1.0	0.7						12	25	50	500	2.7	C-4
				permissibl	e load [kN	1								
	dowr	nwards	(Fz)	lateral (F		_	vards (-	F <sub>7</sub> )						
Type	100	250	350°C		350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 R0 64	0.6	0.6	0.5	30% x		-	-	-	105	135	70	175	100	0.8
49 R0 65 HL	2.2	1.8	1.5	50% x		-	-	_	105	135	110	180	100	1.7
49 R0 65 FP	2.2	1.8	1.5	1.6 1.2	0.9	1.2	0.9	0.7	105	135	110	180	100	1.9
Dimension for Lift of	off restrain	nts see	e page 3	3										
				in each foo	direction									
Туре	100		350°C						Е	Α	В	С	Н	kg
49 R0 64 G2P •	0.6	0.6	0.5						105	135	70	175	100	1.8
49 R0 65 HL G2P	2.2	1.8	1.5						105	135	110	180	100	3.1
<ul> <li>For special applic</li> </ul>	cation se	e page	35/35											
0 1 41														
Selection	table	9	OD	14										
	normio	aibla la												load-
Tyroo	100		ad [kN] 350°C							d2	Е	В	ka	
Type 42 R1 69	2.5	2.1	1.5							M8	22	25	kg 0.1	group C-D
42 101 00	2.0	۷.۱	1.5							IVIO	22	20	0.1	OD
	permis	sible lo	ad [kN]											load-
Type	100	250	350°C							d1	Е	В	kg	group
43 R1 69	2.5	2.4	1.7							12	90	25	0.2	C-D
_			ad [kN]							_	_			load-
Type	100		350°C						d1	E	В	L	kg	group
45 R1 61 45 R1 61	3.3 2.7	2.7	1.8 1.5						12 12	25 25	50 50	250 300	1.5 1.7	C-4 C-4
45 R 1 61	2.7	1.6	1.5						12	25 25	50	400	2.2	C-4 C-4
45 R1 61	1.4	1.0	0.7						12	25	50	500	2.7	C-4
4011101		1.0	0.7						12	20	00	000	2.7	O T
				permissibl	e load [kN	]								
	dowr	nwards	(Fz)	lateral (F	x, Fy)	up\	wards (-	Fz)						
Type	100		350°C	100 250		100	250	350°C	Е	Α	В	С	Н	kg
49 R1 64	0.6	0.6	0.5	30% x		-	-	-	107	135	70	180	100	1.0
49 R1 65 HL	2.2	1.8	1.5	50% x	Fz	-	-	-	107	135	110	190	100	1.1
49 R1 65 FP	2.2	1.8	1.5	1.7 1.3	0.9	1.1	0.8	0.6	107	135	110	190	100	2.0
Dimension for Lift of	off restrain	nts see	page 3	3										

E 107 107 A 135 135 B 70 110 C 180 190 H 100 100 kg 1.6 3.1



Design Page 7 / 36 Document No.: 900081-4 and Rev.: 4 Development

Sele	ction	table	OD 16

Selection table		OD	16											
	nermis	sible la	ad [kN]											load-
Type	100		350°C							d2	Е	В	kg	group
42 R2 69	2.5	2.1	1.5							M8	24	25	0.1	C-D
42 112 03	2.5	۷.۱	1.5							IVIO	24	25	0.1	C-D
	normio	oible le												load-
T			ad [kN]							-14	_	_	1	
Type	100		350°C							d1	E	В	kg	group
43 R2 69	2.5	2.4	1.7							12	90	25	0.2	C-D
		-101-1-1-	I FI NII											11
_			ad [kN]							_	_			load-
Type	100		350°C						d1	E	В	L	kg	group
45 R2 61	4.4	3.6	2.5						12	25	50	250	1.5	C-4
45 R2 61	3.7	2.9	2.1						12	25	50	300	1.7	C-4
45 R2 61	2.7	2.2	1.5						12	25	50	400	2.2	C-4
45 R2 61	2.1	1.7	1.2						12	25	50	500	2.7	C-4
45 R2 61	1.9	1.4	1.0						12	25	50	600	3.1	C-4
						_								
				permissib		_								
	dowr	nwards	(Fz)	lateral (F	Fx, Fy)	upı	wards (-	·Fz)						
Type	100	250	350°C	100 250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 R2 64	1.0	0.8	0.7	30% >	< Fz	-	-	-	108	135	70	180	100	1.0
49 R2 65 HL	2.4	2.2	2.1	50% >	< Fz	-	-	-	108	135	110	190	100	1.7
49 R2 65 FP	2.4	2.2	2.1	2.4 1.8	1.3	1.0	0.7	0.5	108	135	110	190	100	2.3
Dimension for Lift of	off restrain	nts see	e page 3	3										
	permiss	sible lo	ad [kN]	in each foo	t direction									
Type	100	250	350°C						Е	Α	В	С	Н	kg
49 R2 64 G2P •	1.00	0.8	0.70						108	135	70	180	100	1.6
49 R2 65 HL G2P	2.4	2.2	2.10						108	135	110	190	100	3.1
For special appli									100	100	110	100	100	0.1
i or opoolar appli	odilon oo	o pago	00/00											
Colootion	4061			10										
Selection	table	3	OD	10										
			1 51 5 13											
_			ad [kN]								_	_		load-
Туре	100		350°C							d2	E	В	kg	group
42 R3 69	2.5	2.1	1.5							M8	25	25	0.1	C-D
_			ad [kN]								_	_		load-
Туре	100		350°C							d1	E	В	kg	group
43 R3 69	2.5	2.4	1.7							12	90	25	0.2	C-D
			oad [kN]											load-
Type	100		350°C						d1	Е	В	L	kg	group
45 R3 61	4.4	3.6	2.5						12	25	50	250	1.9	C-4
45 R3 61	3.7	2.9	2.1						12	25	50	300	2.2	C-4
45 R3 61	2.7	2.2	1.5						12	25	50	400	2.9	C-4
45 R3 61	2.1	1.7	1.2						12	25	50	500	3.5	C-4
45 R3 61	1.9	1.4	1.0						12	25	50	600	4.1	C-4
				permissib	le load [kN	IJ								
	dowr	nwards	(Fz)	lateral (F			wards (-	·Fz)						
Type	100			100 250		100	250	350°C	Е	Α	В	С	Н	kg
49 R3 64	1.0	0.8	0.7	30%		-	-	-	109	135	70	180	100	1.0
49 R3 65 HL	2.4	2.2	2.1	50% >		_	_	-	109	135	110	190	100	1.8
49 R3 65 FP	2.4	2.2	2.1	2.4 1.9		0.9	0.6	0.48	109	135	110	190	100	2.3
Dimension for Lift of					1.7	0.0	0.0	0.40	100	100	110	100	100	2.0
Difficion for Lift (	on restrain	113 300	page 3											

A 135

135

В

70

110

С

180

190

kg 1.6

3.1

100

100

Е

109

109

permissible load [kN] in each foot direction 100 250 350°C

Type 100 250 350°C
49 R3 64 G2P 1.00 0.8 0.70
49 R3 65 HL G2P 2.4 2.2 2.10
• For special application see page 35/35



Design and Document No.: 900081-4
Development

Page 8 / 36

Rev.: 4

Selection	table	OD 25
OCICCIOII	Labic	00 20

Selection	table	7	OD.	23										
	permis	sible lo	oad [kN]											load-
Type	100	250	350°C							d2	Е	В	kg	group
42 R4 69	5.5	4.0	3.0							M10	30	30	0.3	C-2
	•		oad [kN]											load-
Type	100		350°C							d1	Е	В	kg	group
43 R4 69	6.0	4.5	3.0							12	110	30	0.5	C-2
			1 71 5 17											
_	•		pad [kN]							_	_			load-
Type	100		350°C						d1 12	E	В	L	kg	group C-4
45 R4 61 45 R4 61	4.6 3.7	3.7	2.6 2.1						12	25 25	50 50	250 300	1.9	C-4
45 R4 61	2.7	2.2	1.6						12	25 25	50	400	2.2	C-4 C-4
45 R4 61	2.7	1.7	1.0						12	25	50	500	3.5	C-4
45 R4 61	1.8	1.4	1.0						12	25	50	600	4.1	C-4
1011101	1.0		1.0							20	00	000		0 1
				permissib	le load [kl	J1								
	dowr	wards	(Fz)	lateral (	-	-	vards (-	·Fz)						
Type	100	250	350°C	,	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 R4 64	1.0	0.8	0.7	30%	k Fz	-	-	-	113	150	70	200	100	1.3
49 R4 65 HL	3.0	2.4	2.1	50%	k Fz	-	-	-	113	150	110	230	100	3.2
49 R4 65 FP	3.0	2.4	2.1	3.0 2.4	2.1	3.0	2.2	1.80	113	150	110	230	100	3.6
Dimension for Lift of	off restrain	nts see	e page 3	3										
	permis			in each foo	t direction	l								
Type	100		350°C						Е	Α	В	С	Н	kg
49 R4 64 G2P •	1.0	0.8	0.7						113	150	70	200	100	2.0
49 R4 65 HL G2P	3.0	2.4	2.1						113	150	110	230	100	5.8
<ul> <li>For special application</li> </ul>	cation se	e page	35/35											
Selection	table	•	OD	28										
			oad [kN]											load-

<b>T</b>	•		oad [kN]		-10	_			load
Туре	100	250	350°C		d2	E	В	kg	grou
42 R5 69	5.5	4.0	3.0		M10	35	30	0.3	C-2
	permis	sible lo	oad [kN]						load-
Type	100	250	350°C		d1	Е	В	kg	group
43 R5 69	6.0	4.5	3.0		12	110	30	0.5	C-2
	permis	sible lo	oad [kN]						load-
Type	100	250	350°C	d1	Е	В	L	kg	group
45 R5 61	4.6	3.7	2.6	12	25	50	250	1.9	C-4
45 R5 61	3.7	3.0	2.1	12	25	50	300	2.2	C-4
45 R5 61	2.7	2.2	1.6	12	25	50	400	2.9	C-4
45 R5 61	2.2	1.7	1.2	12	25	50	500	3.5	C-4
45 R5 61	1.8	1.4	1.0	12	25	50	600	4.1	C-4

				perm	issible	load [kN	l]								
	dowr	nwards	(Fz)	late	ral (F	k, Fy)	upv	vards (-	·Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 R5 64	1.0	0.8	0.7	30	)% х	Fz	-	-	-	114	150	65	200	100	1.3
49 R5 65 HL	3.0	2.4	2.1	50	0% x	Fz	-	-	-	114	150	110	230	100	3.2
49 R5 65 FP	3.0	2.4	2.1	3.0	2.4	2.1	2.7	1.8	1.4	114	160	110	230	100	3.7
Dimension for Lift off restraints see page 33															

	permis	sible lo	ad [kN]	each foot direction						
Type	100	250	350°C		Е	Α	В	С	Н	kg
49 R5 64 G2P •	1.0	0.8	0.7		114	150	65	200	100	2.0
49 R5 65 HL G2P	3.0	2.4	2.1		114	150	110	230	100	5.8
For special application see page 35/35										



Document No.: 900081-4

Page 9 / 36

Rev.: 4

Type	permis 100		oad [kN] 350°C					E	d <sub>N</sub> <sup>+0,1</sup>	N	min	L max	k min	g max	load group
34 R6 62R	4.2	3.3	2.8					54	15	44	250	550	2.9	5.2	2
	permis	sible lo	oad [kN]												max•
Type	100		350°C					d1	Е	Α	В	B1	F <b></b>	kg	loadgr
36 R6 61	4.0	4.0	4.0					10	110	75	50	20	9	0.9	2
<ul> <li>The connecting</li> </ul>	load gro	up has	to be st	ated in	the o	rder.									
<b>f</b> Lug dimensions	: F less	1 mm;	B1 plus	2 mm	see	page 3)									
			·			,									
	permis	sible lo	oad [kN]												load-
Type	100		350°C								d2	Е	В	kg	group
42 R6 69	5.5	4.0	3.0								M10	35	30	0.4	C-2
_	•		oad [kN]									_	_		load-
Type	100		350°C								d1	E	В	kg	group
43 R6 69	6.0	4.5	3.0								12	120	30	0.6	C-2
	nermie	cible la	oad [kN]												load-
Type	100	250	350°C							d1	Е	В	L	kg	group
45 R6 61	5.8	4.6	3.3							12	25	60	250	2.3	C-4
45 R6 61	4.7	3.8	2.7							12	25	60	300	2.7	C-4
45 R6 61	3.4	2.7	2.0							12	25	60	400	3.4	C-4
45 R6 61	2.6	2.2	1.5							12	25	60	500	4.2	C-4
45 R6 61	2.2	1.8	1.3							12	25	60	600	4.9	C-4
				•		load [kN	-								
		nwards	` '		al (F		upv	vards (-							
Туре	100	250	350°C	100		350°C	100	250	350°C	E	A	В	С	Н	kg
49 R6 64	1.1	0.9	0.8		% x		-	-	-	116	150	70	200	100	1.4
49 R6 65 HL	3.3 3.3	2.7	2.4 2.4		% x 1.3		-	-	-	116	150 220	110 50	230 230	100 100	3.4 3.4
49 R6 65 GS • 49 R6 65 FP •	3.3	2.7	2.4	1.6 1.6	1.3	1.2 1.2	1.0	0.8	0.7 0.7	116 116	220	50	230	100	3.4
Dimension for Lift o					1.3	1.2	1.0	0.6	0.7	110	220	50	230	100	3.0
Trunnion design					18										
Transition doolgi		11010	J.G.11010	. AN -											
	nermie	sihle la	ad [kN] i	in each	foot	direction									
Type	100	250	350°C	cuoi	. 1001	an collon				Е	Α	В	С	Н	kg
49 R6 64 G2P,	1.1	0.9	0.8							116	150	70	200	100	2.2
49 R6 65 HL G2P	3.3	2.7	2.4							116	150	110	230	100	6.0
, For special applic															
		, 5													



Document No.: 900081-4

Page 10 / 36

Rev.: 4

	permis	sible lo	oad [kN]								ı	_	k	g	load
Type	100	250	350°C					Е	$d_N^{+0,1}$	N	min	max	min	max	group
34 R7 62R	4.2	3.3	2.8					54	15	50	250	550	3.0	5.2	2
	permis	sible lo	oad [kN]												max•
Type	100	250	350°C					d1	Е	Α	В	B1	F <b></b>	kg	loadgr
36 R7 61	4.0	4.0	4.0					10	110	75	50	20	9	0.9	2
The connecting	load aro	un has	to he st	ated in	the c	rder									
f Lug dimensions		•													
J Lug dimensions	. F 1655	1 111111,	D I plus	Z        (	See	page 4)									
	permis	sible lo	oad [kN]												load-
Type	100		350°C								d2	Е	В	kg	group
42 R7 69	5.5	4.0	3.0								M10	40	30	0.4	C-2
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d1	Е	В	kg	group
43 R7 69	6.0	4.5	3.0								12	130	30	0.7	C-2
	•		oad [kN]												load-
Type	100	250	350°C							d1	Е	В	L	kg	group
45 R7 61	5.8	4.6	3.3							12	25	60	250	2.3	C-4
45 R7 61	4.7	3.8	2.7							12	25	60	300	2.7	C-4
45 R7 61	3.4	2.7	2.0							12 12	25	60	400	3.5	C-4
45 R7 61 45 R7 61	2.6 2.2	2.2 1.8	1.5 1.3							12	25 25	60 60	500 600	4.2 5.0	C-4 C-4
45 K7 61	2.2	1.0	1.3							12	25	60	600	5.0	C-4
				nermi	ecible	load [kN	1								
	dowr	nwards	(F <sub>7</sub> )	•		, юаа <sub>(</sub> кгу к, Fy)	-	vards (-	.F <sub>7</sub> )						
Type	100	250	350°C	100	•	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 R7 64	1.1	0.9	0.8		% x		-	-	-	119	150	70	200	100	1.5
49 R7 65 HL	3.3	2.7	2.4		% x		-	-	-	119	150	115	230	100	3.6
49 R7 65 GS•	3.3	2.7	2.4	1.6	1.3	1.2	1.0	0.8	0.7	119	220	50	230	100	3.8
49 R7 65 FP •	3.3	2.7	2.4	1.6	1.3	1.2	1.0	8.0	0.7	119	220	50	230	100	3.4
Dimension for Lift of	ff restrai	nts see	e page 3	3											
<ul> <li>Trunnion design</li> </ul>	n: trunnio	n hole	diamete	$r d_N = r$	18										
	permis	sible lo	ad [kN]	in each	foot	direction									
Type	100	250	350°C							Е	Α	В	С	Н	kg
49 R7 64 G2P,	1.1	0.9	8.0							119	150	70	200	100	2.2
49 R7 65 HL G2P	3.3	2.7	2.4							119	150	115	230	100	6.4
For special applic	ation se	e page	35/35												



Document No.: 900081-4

Page 11 / 36

Rev.: 4

	permis	sible lo	oad [kN]								ı	L	k	a	load
Type	100		350°C					Е	$d_N^{+0,1}$	N	min	max	min	max	group
34 R8 62R	4.2	3.3	2.8					54	15	57	300	600	3.3	5.4	2
011100211		0.0	0					0.	.0	0.			0.0	0	_
	permis	sible lo	oad [kN]						,						max•
Type	100		350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 R8 61	8.0	8.0	8.0					12	130	85	50	20	9	1.2	3
The connecting				atad in	ho o	rdor		12	130	00	30	20	J	1.2	<u> </u>
J		•					e - L	di i iree		a = .e		- ( ( 0)	_		
, E dimension at i		•				•	tion by	tne airr	erence of	tne 🗠 ai	mension	or type 3:	)		
<b>f</b> Lug dimensions	: F less	1 mm;	B1 plus	2 mm (	see	page 4)									
			1 51 5 17												
<b>T</b>	•		pad [kN]								-10	_	_		load-
Type	100		350°C								d2	E	В	kg	group
42 R8 69	5.5	4.0	3.0								M10	45	30	0.4	C-2
	nermie	eihla la	oad [kN]												load-
Type	100	250	350°C								d1	Е	В	kg	group
43 R8 69	6.0	4.5	3.0								12	140	30	0.7	C-4
4011000	0.0	4.0	0.0								12	140	00	0.7	O ¬
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C							d1	Е	В	L	kg	group
45 R8 61	9.0	7.2	5.1							12	25	70	300	3.9	C-4
45 R8 61	6.5	5.2	3.7							12	25	70	400	5.0	C-4
45 R8 61	5.1	4.0	2.9							12	25	70	500	6.1	C-4
45 R8 61	4.1	3.3	2.4							12	25	70	600	7.2	C-4
						load [kN	•								
		nwards	` '			k, Fy)		vards (-							
Туре	100	250	350°C			350°C	100	250	350°C	E	A	В	С	Н	kg
49 R8 64	1.2	1.0	0.9		% X		-	-	-	123	150	70	210	100	1.9
49 R8 65 HL 49 R8 65 GS•	3.6 3.6	3.0	2.7 2.7		% x 1.5		-	-	-	123 123	150 220	110 65	230 230	100 100	3.4
49 R8 65 FP	3.6	3.0	2.7	1.8 1.8	1.5	1.3 1.3	1.0	0.9	0.8	123	220	65	230	100	4.6 4.2
Dimension for Lift o					1.5	1.3	1.0	0.9	0.0	123	220	00	230	100	4.2
<ul> <li>Trunnion design</li> </ul>					R										
Transition design			aidirioto	. ⊲ <sub>IV</sub> = 1	J										
	nermic	cible le	ad [kNI]	n each	foot	direction									
Type	100		350°C	ii <del>c</del> acii	1001	un ection				Е	Α	В	С	Н	kg
49 R8 64 G2P,	1.2	1.0	0.9							123	150	70	210	100	2.9
49 R8 65 HL G2P	3.6	3.0	2.7							123	150	110	230	100	6.3
, For special applic										120	100	110	200	100	0.0
, i oi opoolai applic	Jan 311 30	- page	30,00												



Document No.: 900081-4

Page 12 / 36

Rev.: 4

Type 34 R9 62R	permis 100 5.5	sible lo 250 4.0	ad [kN] 350°C 2.9				E 54	d <sub>N</sub> <sup>+0,1</sup>	N 69	min 350	_ max 600	k min 3.5	g max 5.7	load group 2
34 IV9 02IV	5.5	4.0	2.9				J <del>4</del>	22	03	330	000	5.5	5.7	2
	permis	sible lo	ad [kN]					,						max•
Type	100		350°C				d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 R9 61	14.0	13.0	12				15	150	110	50	25	9	1.9	4
The connecting	load gro	up has	to be sta	ated in the	order.									
, E dimension at r	nax. load	d arour	o - at sma	aller load d	roup redu	ction by	the diff	erence of	the E di	mension	of type 35	5		
f Lug dimensions:		•		_		,					7,			
y Lug amiononono			<b>2</b> . p.ao .	( 00.	page ./									
	permis	sible lo	ad [kN]											load-
Type	100	250	350°C							d2	Е	В	kg	group
42 R9 69	7.5	5.5	4.0							M12	55	40	0.7	C-2
		-1.1-1-	I FI NII											11
T	•		ad [kN]							-14	_	_	l.a.	load-
Type 43 R9 69	100 7.5	250 5.5	350°C 4.0							d1 12	E 150	B 40	kg 1.1	group C-4
43 13 03	7.5	5.5	4.0							12	130	40	1.1	U-4
	permis	sible lo	ad [kN]											load-
Type	100	250	350°C						d1	Е	В	L	kg	group
45 R9 61	9.0	6.7	4.8						12	25	70	300	4.0	C-4
45 R9 61	6.5	4.8	3.4						12	25	70	400	5.0	C-4
45 R9 61	5.1	3.8	2.7						12	25	70	500	6.1	C-4
45 R9 61	4.1	3.1	2.2						12	25	70	600	7.2	C-4
				n orminaih	la laad Ild	17								
	dowr	nwards	(E <sub>7</sub> )	permissib lateral (F	_	-	vards (-	E-7\						
Type	100	250	` '		350°C	100	varus (- 250	350°C	Е	Α	В	С	Н	kg
49 R9 64	1.3	1.1	1.0	30% >		-	-	-	129	150	75	220	100	2.6
49 R9 65 HL	3.9	3.3	3.0	50% >		-	-	-	129	150	115	240	100	4.3
49 R9 65 GS•	3.9	3.3	3.0	2.0 1.7		1.2	1.0	0.9	129	230	50	240	100	5.9
49 R9 65 FP•	3.9	3.3	3.0	2.0 1.7		1.2	1.0	0.9	129	230	50	240	100	5.5
Dimension for Lift of				, ,	33									
<ul> <li>Trunnion design</li> </ul>	: trunnio	n hole	diamete	$r d_N = 26$										
_	•			n each foo	t direction	l e			_		_		, .	
Type	100	250	350°C						E	A	B	C	H	kg
49 R9 64 G2A 49 R9 64 G2P,	1.3 1.3	1.1	1.0 1.0						129 129	150 150	75 75	220 220	100	3.8 3.8
49 R9 64 G2P,	1.3	1.1	1.0						129	150	75 75	220	100	5.7
49 R9 64 G4	1.3	1.1	1.0						129	150	75	220	100	7.6
49 R9 65 HL G2P	3.9	3.3	3.0						129	150	115	240	100	7.2
, For special applic	ation se	e page	35/35											



Document No.: 900081-4

Page 13 / 36

Rev.: 4

# Selection table OD 76 (76.1)

	permis	sible lo	ad [kN]								l	_	k	g	loa
Type	100	250	350°C					Е	$d_N^{+0,1}$	N	min	max	min	max	gro
34 08 62R	8.0	6.0	4.3					59	29	88	300	600	4.4	7.2	2
34 08 63R	16	12	8.5					71	29	88	300	600	6.4	10.5	3
	permis	sible lo	ad [kN]						,						max
Type	100	250	350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	load
36 08 61	15	14	13					15	160	125	50	25	9	2.2	
The connecting		up has		ated in th	ne or	der.									
E dimension at	_						ction by	the diff	erence of	the E di	mension	of type 35	5		
Lug dimensions					_	•	,					. 91			
			•			,									
			ad [kN]												lo
Type	100	250									d2	E	В	kg	gr
42 08 69	7.5	5.5	4.0								M12	60	40	0.9	С
	permis	sible lo	ad [kN]												lo
Type	100	250	350°C								d1	Е	В	kg	gr
43 08 69	7.5	5.5	4.0								12	165	40	1.2	C
	permis	sible lo	ad [kN]												lo
Type	100	250	350°C							d1	Е	В	L	kg	gr
45 08 69			5.0							12	25	70	300	6.6	С
45 08 61	17	13	9.2							16	30	70	300	6.6	1
45 08 62	27	23	16							16	30	100	300	9.3	1
45 08 69			5.0							12	25	70	400	8.2	С
45 08 61	14	10	7.5							16	30	70	400	8.2	1
45 08 62	22	16	11							16	30	100	400	11.6	1
45 08 69	44	0.0	5.0							12	25	70	500	9.9	C
45 08 61	11	8.3	6.0							16	30	70	500	9.9	1
45 08 62	17	12	9.1							16	30	100	500	14.0	1
45 08 69 45 08 61	0.0	5.0 6.6	4.7 4.7							12 16	25	70 70	600	11.5 11.5	C
45 08 62	9.0 13	10	7.3							16	30 30	100	600 600	16.3	1
45 00 02	13	10	1.3							10	30	100	000	10.3	
				permiss	ible l	oad [kN	]								
	dowr	nwards	(Fz)	latera				vards (-	Fz)						
Type	100	250	350°C			350°C	100	250	350°C	Е	Α	В	С	Н	ŀ
08 64	1.4	1.2	1.1	30%	х	Fz	-	-	-	138	200	80	270	100	3
08 65 HL	4.1	3.5	3.3	50%	x	Fz	-	-	-	138	200	115	290	100	5
08 65 GS•	4.1	3.5	3.3	2.1 1	8.	1.7	1.2	1.1	1.0	138	280	90	290	100	7
08 65 FP•	4.1	3.5	3.3		1.8	1.7	1.2	1.1	1.0	138	280	90	290	100	7
mension for Lift of	off rootroi	-4- /	ماط منحمه												

	permis	sible ic	ad [kN]	each foot direction						
Type	100	250	350°C		E	Α	В	С	Н	kg
49 08 64 G2A	1.4	1.2	1.1	1:	38	200	80	270	100	4.8
49 08 64 G2P,	1.4	1.2	1.1	1	38	200	80	270	100	4.8
49 08 64 G3	1.4	1.2	1.1	1:	38	200	80	270	100	6.3
49 08 64 G4	1.4	1.2	1.1	1:	38	200	80	270	100	7.8
49 08 65 HL G2P	4.1	3.5	3.3	1;	38	200	115	290	100	8.4

<sup>49 08 65</sup> HL G2P 4.1 3.5 3.3 , For special application see page 35/35



Document No.: 900081-4

Page 14 / 36

Rev.: 4

#### **Selection table** OD 89 (88.9)

	normic	ciblo lo									L	k	α .	load
_			oad [kN]				_	. +0.1				k	7	load
Type	100		350°C				Е	$d_N^{+0,1}$	N	min	max	min	max	group
34 09 62R	8.0	5.9	4.2				62	29	101	350	750	5.6	9.8	2
34 09 63R	16	11.9	8.5				75	29	101	350	750	8.0	14.2	3
	_													
_			oad [kN]					_'		_				max•
Type	100		350°C				d1 •	Emax	Α	В	B1	F <b>_f</b>	kg	loadgi
36 09 61	23	20	19				20	185	146	50	30	11	3.8	5
<ul> <li>The connecting</li> </ul>														
E dimension at						ction by	the diffe	erence of	the E di	mension	of type 35	5		
£ Lug dimensions	: F less '	1 mm;	B1 plus	2 mm ( see	page 4)									
	permis	sible lo	oad [kN]											load-
Type	100		350°C							d2	Е	В	kg	group
42 09 69	6.5	4.5	3.5							M12	70	40	1.0	C-2
_			oad [kN]							, .	_	_		load-
Type	100	250	350°C							d1	E	В	kg	group
43 09 68			2.5							12	170	40	1.4	C-D
43 09 69	7.5	5.5	4.0							16	170	40	1.4	1-4
	permis	sible lo	oad [kN]											load-
Type	100		350°C						d1	Е	В	L	kg	group
45 09 69			5.0						12	25	70	300	6.7	C-D
45 09 61	17	13	9.5						16	30	70	300	6.7	1-4
45 09 62	27	23	16						16	30	100	300	9.4	1-4
45 09 69			5.0						12	25	70	450	9.1	C-D
45 09 61	12	8.9	6.4						16	30	70	450	9.1	1-4
45 09 62	19	14	10						16	30	100	450	12.9	1-4
45 09 69		5.0	3.7						12	25	70	600	11.6	C-D
45 09 61	9.0	6.6	4.7						16	30	70	600	11.6	1-4
45 09 62	13	10	7.3						16	30	100	600	16.5	1-4
45 09 69		5.0	3.7						12	25	70	750	14.1	C-D
45 09 61	7.1	5.2	3.7						16	30	70	750	14.1	1-4
45 09 62	10	7.9	5.6						16	30	100	750	20.0	1-4
					- 1I FL N									
	dow		(F-)	permissible			vordo (	Γ-\						
T		nwards		lateral (F			wards (-		_	۸	_	_		1
Type	100	250	350°C		350°C	100	250	350°C	E	A	В	С	H	kg
9 09 64	2.6	2.2	2.1	30% x		-	-	-	144	200	85	280	100	4.0
9 09 65 HL	7.8	6.6	6.3	50% x		-	-	-	144	200	115	320	100	7.1
9 09 65 GS •	7.8	6.6	6.3	3.9 3.3	3.2	2.3	2.1	1.9	144	315	90	320	100	9.8
9 09 65 FP•	7.8	6.6	6.3	3.9 3.3	3.2	2.3	2.1	1.9	144	315	90	320	100	9.4
imension for Lift o														
<ul> <li>Trunnion design</li> </ul>	n: trunnio	n hole	diamete	$r d_N = 33 m$	m									
	permis	sible lo	ad [kN]	in each foot	direction									
Type	100		350°C	000111001	3 0011011				Е	Α	В	С	Н	kg
9 09 64 G2A	2.6	2.2	2.1						144	200	85	280	100	6.0
9 09 64 G2P	2.6	2.2	2.1						144	200	85	280	100	6.0
9 09 64 G3	2.6	2.2	2.1						144	200	85	280	100	8.0
9 09 64 G4	2.6	2.2	2.1						144	200	85	280	100	10.0
9 09 65 HL G2P	7.8	6.6	6.3						144	200	115	320	100	12.3
									1-1-1	200	110	320	100	12.3
For special applic														



Document No.: 900081-4

Page 15 / 36

Rev.: 4

	permis	sible lo	oad [kN]									_	k	g	load
Type	100	250	350°C					Е	$d_N^{+0,1}$	N	min	max	min	max	group
34 10 62R	8.0	6.0	4.3					66	42	130	350	800	5.9	11.2	2
34 10 63R	16	12	8.6					79	42	130	350	800	9.0	16.7	3
01100010	10		0.0					70	· <b>-</b>	100	000	000	0.0	10.7	
	permis	sible lo	oad [kN]						,						max•
Type	100		350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 10 61	32	29	24					20	205	165	50	35	11	4.9	5
								20	203	105	30	33	- 11	4.9	3
<ul> <li>The connecting I</li> </ul>															
E dimension at n	nax. Ioac	d group	o - at sm	aller lo	oad gr	oup reduc	ction by	the diffe	erence of	the E di	mension	of type 35	5		
<b>f</b> Lug dimensions:	Fless 1	l mm;	B1 plus	2 mm	(see	page 4)									
			·		`	, ,									
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d2	Ε	В	kg	group
42 10 69	10	7.6	6.0								M16	90	50	2.0	1-4
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d1	Е	В	kg	group
43 10 69	10	7.6	6.0								16	200	50	2.5	1-4
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C							d1	Е	В	L	kg	group
45 10 69			5.0							12	25	80	350	8.4	C-D
45 10 61	17	13	9.7							16	30	80	350	8.4	1-4
45 10 69			5.0							12	25	80	500	11.2	C-D
45 10 61	12	9.3	6.7							16	30	80	500	11.2	1-4
45 10 69			5.0							12	25	80	650	14.0	C-D
45 10 61	9.4	7.0	5.0							16	30	80	650	14.0	1-4
45 10 69		5.0	4.0							12	25	80	800	16.9	C-D
45 10 61	7.5	5.6	4.0							16	30	80	800	16.9	1-4
			1 51 5 17									40		40	
			oad [kN]						L			ype 46	kg / Ty	/pe 48	load-
Туре	100	250	350°C	d3	$d_N$	Eĸ	E <sub>R</sub>	N	min	max	min	max	min	max	group
46 10 62 / 48 10 62R	18	14	10	25	48	5	70	130	350	800	9.0	18.0	7.0	16.0	3-5
				perm	issible	e load [kN	]								
	down	wards	(Fz)		eral (F			wards (-	Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 10 64	3.0	2.7	2.5	30	0% x	Fz	-	-	-	204	200	125	290	150	8.0
49 10 65 HL	9.0	8.1	7.5	50	0% x	Fz	-	-	-	204	200	180	330	150	14.3
49 10 65 GS •	9.0	8.1	7.5	4.5	4.1	3.8	2.7	2.5	2.3	204	325	110	330	150	15.4
49 10 65 FP •	9.0	8.1	7.5	4.5	4.1	3.8	2.7	2.5	2.3	204	325	110	330	150	15.0
Dimension for Lift of															
<ul> <li>Trunnion design:</li> </ul>	trunnio	n hole	diamete	$r d_N =$	46 mi	m									
	permiss	sible lo	oad [kN]	in eac	h foot	direction									
Type	100	250	350°C							Е	Α	В	С	Н	kg
49 10 64 G2A	3.0	2.7	2.5							204	200	125	290	150	12.0
49 10 64 G2P,	3.0	2.7	2.5							204	200	125	290	150	12.0
49 10 64 G3	3.0	2.7	2.5							204	200	125	290	150	16.0
49 10 64 G4	3.0	2.7	2.5							204	200	125	290	150	20.0
49 10 65 HL G2P	9.0	8.1	7.5							204	200	180	330	150	25
For special application	ation see	e page	35/35												



Document No.: 900081-4

Page 16 / 36

Rev.: 4

	permis	sible lo	oad [kN]								l		k	a	load
Type	100		350°C					Е	$d_{N}^{+0,1}$	N	min	- max	min	max	group
34 13 62R	8.0	5.9	4.2					67	42	155	400	850	7.0	12.4	2
34 13 63R	16	12	8.6					81	42	155	400	850	11.4	19.3	3
34 13 03R	10	12	0.0					01	42	155	400	850	11.4	19.3	3
	nermic	cible la	oad [kN]												max•
T	•							-14 -		۸	_	D4	- 6	l.a.	
Type	100		350°C					d1 •	Emax	Α	В	B1	F <b>_f</b>	kg	loadgr
36 13 61	31	28	23					20	225	190	50	35	11	5.8	5
The connecting le	oad grou	up has	to be st	ated ir	the c	rder.									
, E dimension at m	nax. Ioac	d group	o - at sm	aller lo	oad gr	oup reduc	ction by	the diffe	erence of	the E di	mension	of type 3	5		
<b>f</b> Lug dimensions:	F less 1	l mm;	B1 plus	2 mm	( see	page 4)									
<b>J</b> 1 <b>J</b> 1 1 1 1		,			,	1 - 3 - 7									
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 13 69	10	7.6	5.6								M16	100	50	2.2	1-4
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d1	Е	В	kg	group
43 13 69	10	7.6	6.0								16	220	50	2.8	1-4
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C							d1	Е	В	L	kg	group
45 13 69			5.0							12	25	90	400	10.7	C-D
45 13 61	18	14	10							16	30	90	400	10.7	1-4
45 13 69			5.0							12	25	90	550	13.9	C-D
45 13 61	13	9.7	6.9							16	30	90	550	13.9	1-4
45 13 69			5.0							12	25	90	700	17.1	C-D
45 13 61	9.9	7.4	5.3							16	30	90	700	17.1	1-4
45 13 69		5.0	4.2							12	25	90	850	20.2	C-D
45 13 61	8.0	5.9	4.2							16	30	90	850	20.2	1-4
		دا داداد									L / T.	40	1. a. / T.	10	laad
<b>T</b>			oad [kN]	.10	_1	_	_		L		kg / Ty	•	kg / Ty	•	load-
Туре	100	250	350°C	d3	d <sub>N</sub>	Eĸ	E <sub>R</sub>	N	min	max	min	max	min	max	group
46 13 62 / 48 13 62R	22	18	13	25	48	10	70	155	400	850	12.0	22	8.0	20.0	3-5
						load [kN									
		wards	` '		ral (F		upv	vards (-							
Type	100	250	350°C	100		350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 13 64	3.2	2.7	2.6		)% x		-	-	-	217	200	130	290	150	8.6
49 13 65 HL	9.6	8.1	7.8		0% x		-	-	-	217	200	180	330	150	15.0
49 13 65 GS •	9.6	8.1	7.8	4.8	4.1	3.9	2.9	2.4	2.3	217	320	110	330	150	14.8
49 13 65 FP •	9.6	8.1	7.8	4.8	4.1	3.9	2.9	2.4	2.3	217	320	110	330	150	14.4
Dimension for Lift off															
<ul> <li>Trunnion design:</li> </ul>	เนาทเด	ii noie	ularnete	u <sub>N</sub> =	40 1111	П									
		. 11. 1	- 1 51 5 17			Para d									
_	•			n eac	n toot	direction				_		_	_	, .	
Type	100		350°C							E	A	B	С	H	kg
49 13 64 G2A	3.2	2.7	2.6							217	200	130	290	150	12.8
49 13 64 G2P,	3.2	2.7	2.6							217	200	130	290	150	12.8
49 13 64 G3	3.2	2.7	2.6							217	200	130	290	150	17.0
49 13 64 G4	3.2	2.7	2.6							217	200	130	290	150	21
49 13 65 HL G2P	9.6	8.1	7.8							217	200	180	330	150	26
, For special applica	2001 SE	- page	33/33												



49 16 64 G4

Document No.: 900081-4

Page 17 / 36

Rev.: 4

# Selection table OD 159

3.5

4.4

49 16 65 HL G2P 12 11 10 , For special application see page 35/35

3.7

OCICOLIOII	Labr		OD												
	permis	sible lo	oad [kN]									L	k	g	load
Type	100	250	350°C					Е	$d_{N}^{+0,1}$	N	min	max	min	max	group
34 16 62R	8.0	6.0	4.3					72	54	181	450	900	8.8	14.9	2
34 16 63R	16	12	8.6					85	54	181	450	900	13.4	22.1	3
34 16 64R	36	26	19					104	54	181	450	900	21	35	4
		-7.1.1.	I D ND												
_			oad [kN]						_'		_				max•
Type	100		350°C					d1 •	Emax	A	В	B1	F <b></b>	kg	loadgr
36 16 61	30	27	24					20	245	220	50	35	11	6.7	5
<ul> <li>The connecting I</li> </ul>	load gro	up has	to be st	ated in	n the c	order.									
, E dimension at n	nax. Ioad	d group	o - at sm	aller lo	oad gr	oup reduc	ction by	the diff	erence of	the E di	mension	of type 35	5		
<b>f</b> Lug dimensions:	F less	1 mm;	B1 plus	2 mm	(see	page 4)									
			·		Ì										
			oad [kN]												load-
Type	100		350°C								d2	Е	В	kg	group
42 16 69	9.0	6.6	4.8								M16	115	50	2.5	1-4
	n ormio	ما ماماد													lood
T	•		oad [kN]								-14	_	_	l.e.	load-
Type 43 16 69	100 10	7.5	350°C 5.4								d1 16	E 245	B 50	kg 3.1	group 1-4
43 10 09	10	7.5	5.4								10	243	30	3.1	1-4
	permis	sible lo	oad [kN]						L		ka / T	ype 46	kg / Ty	/ne 48	load-
Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	group
46 16 61 / 48 16 61R	18	14	10	21	60	15	90	181	450	900	12.0	23	9.3	21	C-4
46 16 62 / 48 16 62R	28	22	16	25	60	15	85	181	450	900	13.0	33	10.3	25	3-5
10 10 027 10 10 0210	20		10		00	10	00	101	100	000	10.0	00	10.0		
				nerm	issihle	load [kN	1								
	dowr	nwards	(Fz)	•	eral (F	_	-	wards (-	·Fz)						
Type	100	250	350°C		•	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 16 64	4.4	3.7	3.5		0% x		-	-	-	230	250	140	340	150	9.8
49 16 65 HL	12	11	10		0% x		-	-	-	230	250	185	350	150	18.2
49 16 65 GS•	12	11	10	6.1	5.6	5	3.6	3.3	3	230	340	140	350	150	19.6
49 16 65 FP •	12	11	10	6.1	5.6	5	3.6	3.3	3	230	340	140	350	150	18.6
Dimension for Lift of															
<ul> <li>Trunnion design:</li> </ul>	: trunnio	n hole	diamete	$r d_N =$	58 mi	m									
				in eac	h foot	direction									
Type	100		350°C							Е	Α	В	С	Н	kg
49 16 64 G2A	4.4	3.7	3.5							230	250	140	340	150	14.6
49 16 64 G2P,	4.4	3.7	3.5							230	250	140	340	150	14.6
49 16 64 G3	4.4	3.7	3.5							230	250	140	340	150	19.4

230

230

250

250

140

185

340

350

150

150

24

32



Document No.: 900081-4

Page 18 / 36

Rev.: 4

# Selection table OD 220 (219.1)

Type 100 250 350°C E d <sub>N</sub> <sup>+0,1</sup> N	min	max	min	max	group
0.1.00.000					
34 22 63R 16 12 8.6 95 73 242	500	1100	19	33	3
34 22 64R 36 26 19 116 73 242	500	1100	28	50	4
34 22 65R 92 60 48 133 73 242	500	1100	44	74	5

	permis	sible lo	oad [kN]		,						max•
Type	100	250	350°C	d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 22 61	49	44	38	30	310	300	50	45	11	14	6
36 22 62	65	57	49	30	310	300	50	45	13	16	6

- The connecting load group has to be stated in the order.
- , E dimension at max. load group at smaller load group reduction by the difference of the E dimension of type 35
- f Lug dimensions: F less 1 mm; B1 plus 2 mm ( see page 4)

		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d2	Е	В	kg	group
	42 22 69	7.0	5.2	3.7								M16	145	50	3.1	1-4
		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d1	Е	В	kg	group
	43 22 69	12	9.1	6.5								16	295	50	5.0	1-5
		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d3	Е	В	kg	group
	44 22 62	29	23	18								34	275	75	9	3-6
		permis	sible lo	oad [kN]							L	kg / Ty	/pe 46	kg / Ty	rpe 48	load-
	Type	100	250	350°C	d3	$d_N$	$E_K$	$E_R$	N	min	max	min	max	min	max	group
	4., 22 61	24	18	13	21	79	15	105	242	500	1100	16.0	38	12.5	36	C-4
	4. 22 62	42	32	23	25	79	25	110	242	500	1100	23	53	17.0	46	3-5
,	second digit:	6 = type 4	6; 8=	= type 48												

				perm	issible	e load [kN	I]								
	dowr	nwards	(Fz)	late	ral (F	x, Fy)	upv	vards (-	Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 22 64	10	8.6	8.2	30	)% x	Fz	-	-	-	260	250	155	365	150	14.1
49 22 65 HL	30	26	25	50	)% x	Fz	-	-	-	260	250	185	380	150	23
49 22 65 GS •	30	26	25	15	13	12	9	7.7	7	260	380	190	380	150	35
49 22 65 FP •	30	26	25	15	13	12	9	7.7	8	260	380	190	380	150	34
Dimension for Lift off	f restraii	nts / w	eld sizes	see p	page 3	33									

<sup>•</sup> Trunnion design: trunnion hole diameter d<sub>N</sub> = 77 mm

	permis	sible ic	ad [kN] ı	each foot direction					
Type	100	250	350°C	E	Α	В	С	Н	kg
49 22 64 G2A	10	8.6	8.2	260	250	155	365	150	22
49 22 64 G2P,	10	8.6	8.2	260	250	155	365	150	22
49 22 64 G3	10	8.6	8.2	260	250	155	365	150	30
49 22 64 G4	10	8.6	8.2	260	250	155	365	150	38
49 22 65 HL G2P	30	26	25	260	250	185	380	150	39
, For special applic	cation se	e page	35/35						



Document No.: 900081-4

Page 19 / 36

Rev.: 4

## Selection table OD 244.5

	permis	sible lo	ad [kN]				1	L	k	g	load
Туре	100	250	350°C	E	$d_{N}^{+0,1}$	N	min	max	min	max	group
34 24 63R	16	12	8.6	95	73	267	500	1100	19	34	3
34 24 64R	36	26	19	116	73	267	500	1100	29	52	4
34 24 65R	92	60	48	135	73	267	500	1100	47	77	5

	permis	sible lo	oad [kN]		,						max•
Type	100	250	350°C	d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 24 61	49	45	36	30	320	320	50	45	11	15.0	6
36 24 62	65	57	47	30	320	330	50	45	13	17.0	6

- The connecting load group has to be stated in the order.
- , E dimension at max. load group at smaller load group reduction by the difference of the E dimension of type 35
- f Lug dimensions: F less 1 mm; B1 plus 2 mm ( see page 4)

		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d2	Е	В	kg	group
	42 24 69	6.3	4.7	3.4								M16	160	50	3.3	1-4
		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d1	Е	В	kg	group
	43 24 69	12	11	8.4								16	310	50	6.1	1-5
		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d3	Е	В	kg	group
	44 24 62	20	16	12								34	300	75	9.0	3-6
	44 24 63	38	35	29								46	330	80	12.0	5-8
		permis	sible lo	oad [kN]							L	kg / T	ype 46	kg / Ty	/pe 48	load-
	Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	group
	4., 24 61	30	23	17	25	79	25	100	267	500	1100	20	46	14.0	39	3-5
	4. 24 62	50	40	28	34	79	35	120	267	500	1100	27	60	19.0	52	4-6
٠.	second digit:	6 = type 4	6: 8=	= tvpe 48												

,	second	digit:	6 = type  46;	8 = type  48

				perm	issible	load [kN	l]								
	dowr	nwards	(Fz)	late	ral (F	x, Fy)	upv	vards (-	·Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 24 64	11	9.7	9.2	30	)% x	Fz	-	-	-	272	250	170	365	150	16
49 24 65 HL	33	29	28	50	)% x	Fz	-	-	-	272	250	185	380	150	22
49 24 65 GS •	33	29	28	16	15	14	10	8.7	8	272	380	200	380	150	40
49 24 65 FP •	33	29	28	16	15	14	10	8.7	8	272	380	200	380	150	38
Dimension for Lift of	ff restrai	nte / w	عمدني الملم	S SAA r	ane?	13									

Trunnion design: trunnion hole diameter d<sub>N</sub> = 77 mm

	permis	sible lo	ad [kN] i	each foot direction						
Type	100	250	350°C		Е	Α	В	С	Н	kg
49 24 64 G2A	11	9.7	9.2		272	250	170	365	150	24
49 24 64 G2P,	11	9.7	9.2		272	250	170	365	150	24
49 24 64 G3	11	9.7	9.2		272	250	170	365	150	33
49 24 64 G4	11	9.7	9.2		272	250	170	365	150	42
49 24 65 HL G2P	33	29	28		272	250	185	380	150	40
, For special applic	cation se	e page	35/35							



36 27 64

Document No.: 900081-4

Page 20 / 36

42

6 7

Rev.: 4

#### Selection table OD 273

	permis	sible lo	oad [kN]					- 1	_	kį	9	load
Type	100	250	350°C	E		$d_{N}^{+0,1}$	N	min	max	min	max	group
34 27 63R	16	12	8.6	99	9	85	295	550	1150	23	38	3
34 27 64R	36	27	19	12	22	85	295	550	1150	36	59	4
34 27 65R	92	61	48	13	34	85	295	550	1150	55	87	5
	permis	sible lo	oad [kN]			,						max•
Type	100	250	350°C	d1	•	Emax	Α	В	B1	F <i><b>f</b></i>	kg	loadgr
36 27 61	48	44	38	30	0	345	350	50	45	11	17	6
36 27 62	65	57	47	30	0	345	355	50	45	13	19	6
				_	_							

36 27 65 • The connecting load group has to be stated in the order.

- ,  $\,$  E dimension at max. load group at smaller load group reduction by the difference of the E dimension of type 35
- f Lug dimensions: F less 1 mm; B1 plus 2 mm ( see page 4)

		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d2	Е	В	kg	group
	42 27 69	6.4	4.7	3.4								M20	180	60	4.7	3-4
		permis	sible lo	oad [kN]												load-
	Type	100	250	350°C								d1	Е	В	kg	group
	43 27 68	9.3	9.0	8.5								16	340	70	12.5	1-3
	43 27 69	29	18	14								24	340	70	12.5	3-6
				oad [kN]												load-
	Type	100	250	350°C								d3	Е	В	kg	group
	44 27 62	26	21	16								34	340	75	10	4-6
	44 27 63	59	54	42								46	360	110	20	5-8
		permis	sible lo	oad [kN]							L	kg / T	ype 46	kg / Ty	/pe 48	load-
	Type	100	250	350°C	d3	$d_N$	$E_K$	$E_R$	N	min	max	min	max	min	max	group
	4., 27 61	35	28	20	25	92	35	105	295	550	1150	27	57	18.5	47	3-5
	4. 27 62	53	42	30	34	92	45	130	295	550	1150	33	70	24	59	4-6
,	second digit:	6 = type 4	6; 8=	= type 48												

				norm	iooible	e load [kN	11								
						-	•								
	dowr	nwards	(Fz)	late	eral (F	x, Fy)	upv	wards (-	·Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 27 64	16	14	13	30	0% x	Fz	-	-	-	287	260	170	395	150	21
49 27 65 HL	48	42	39	50	0% x	Fz	-	-	-	287	260	185	420	150	30
49 27 65 GS•	48	42	39	24	21	20	14	13	12	287	420	200	420	150	48
49 27 65 FP •	48	42	39	24	21	20	14	13	12	287	420	200	420	150	46

Dimension for Lift off restraints / weld sizes see page 33 • Trunnion design: trunnion hole diameter d<sub>N</sub> = 90 mm

	permis	sible lo	oad [kN] i	each foot direction						
Type	100	250	350°C		Е	Α	В	С	Н	kg
49 27 64 G2A	16	14	13		287	260	170	395	150	32
49 27 64 G2P,	16	14	13		287	260	170	395	150	32
49 27 64 G3	16	14	13		287	260	170	395	150	43
49 27 64 G4	16	14	13		287	260	170	395	150	54
49 27 65 HL G2P	48	42	39		287	260	185	420	150	51
<ul> <li>For special applic</li> </ul>	cation se	e nage	35/35							



Document No.: 900081-4

Page 21 / 36

Rev.: 4

	normio	oible le										ı	l,	~	lood
Time			ad [kN]					_	$d_N^{+0,1}$	NI		L	k	-	load
Type	100		350°C					E		N	min	max	min	max	group
34 33 64R	36	27	19					118	104	347	600	1200	44	69	4
34 33 65R	92	60 130	48					139 182	104	347	600	1200	65	99	5
34 33 66R	200	130	105					102	104	347	600	1200	108	162	6
	permis	sible lo	ad [kN]						,						max•
Type	100		350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 33 61	37	35	34					20	380	405	60	40	11	19	5
36 33 62	65	57	48					30	380	415	60	45	13	23	6
36 33 63	100	100	81					30	380	430	60	60	13	33	6
36 33 64	164	149	134					50	395	415	120	90	16	50	7
36 33 65	200	182	163					50	395	430	120	120	16	71	7
The connecting I				ated in	n the o	rder									
, E dimension at m							ction by	the diffe	erence of	the F di	mension	of type 35	5		
f Lug dimensions:							otion by	uio aiii	0101100 01	uio L dii	11101101011	or type of	,		
Lag annonoiono.	1 1000		B i piao		( 000 )	ougo ij									
	permis		ad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 33 69	5.1	3.9	2.8								M20	205	60	4.7	3-4
			ad [kN]												load-
Туре	100		350°C								d1	Е	В	kg	group
43 33 68	9.3	9	8.5								16	375	80	15	1-3
43 33 69	31	23	16								24	375	80	15	3-6
	permis		ad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 33 62	37	32	23								46	375	70	16.6	5-8
44 33 63	70	60	50								51	390	115	28	6-9
	permis	sible lo	ad [kN]						L	-	kg / T	ype 46	kg / Ty	ype 48	load-
Type	100	250	350°C	d3	$d_N$	Eκ	$E_R$	N	min	max	min	max	min	max	group
46 33 61 / 48 33 61R	30	23	17	25	112	35	120	347	600	1200	28	53	22	51	3-5
46 33 62 / 48 33 62R	53	42	30	34	112	40	140	347	600	1200	36	70	28	66	4-6
46 33 63 / 48 33 63R	84	62	46	41	112	55	135	347	600	1200	58	90	35	76	5-7
						load [kN									
	dowr	nwards	` '		eral (Fx		up\	wards (-							
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
9 33 64	20	17	16		0% x		-	-	-	363	260	225	400	200	28
9 33 65 HL	60	51	48	5	0% x		-	-	-	363	260	250	430	200	42
9 33 65 GS•	60	51	48	30	26	24	18	15	14	363	430	250	430	200	83
9 33 65 FP•	60	51	48	30	26	24	18	15	14	363	430	250	430	200	80
Dimension for Lift of					-										
<ul> <li>Trunnion design:</li> </ul>	trunnio	n hole	diamete	$r d_N =$	109 m	ım									
			1.51.5.13												
_				in eac	n toot	direction				_	_	_			
Туре	100		350°C							Е	Α	В	С	Н	kg
19 33 64 G2A	20	17	16							363	260	225	400	200	46
9 33 64 G2P,	20	17	16							363	260	225	400	200	46
19 33 64 G3	20	17	16							363	260	225	400	200	64
19 33 64 G4	20	17	16							363	260	225	400	200	81
19 33 65 HL G2P	60	51	48							363	260	250	430	200	73
<ul> <li>For special application</li> </ul>	ation se	e page	35/35												



Document No.: 900081-4

Page 22 / 36

Rev.: 4

	permis		oad [kN]						10.1			L	k	g	load
Type	100	250	350°C					Е	$d_{N}^{+0,1}$	N	min	max	min	max	group
34 35 64R	36	27	19					120	129	373	600	1200	45	73	4
34 35 65R	92	60	48					141	129	373	600	1200	67	102	5
34 35 66R	200	130	105					184	129	373	600	1200	112	167	6
	permis	sible lo	oad [kN]						,						max•
Type	100		350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 35 61	37	35	32					20	395	435	60	40	11	20	5
36 35 62	65	57	52					30	395	445	60	45	13	26	6
36 35 63	100	100	88					30	395	465	60	60	13	36	6
36 35 64	164	150	138					50	410	445	120	90	16	54	7
36 35 65	200	182	166					50	410	465	120	120	16	78	7
The connecting I	oad aro	un has	to he st	ated ir	the c	order									
•		•					ation bu	the diff	aranaa af	the E di	manaian	of time 25	-		
, E dimension at m							ction by	tne airi	erence or	the E all	mension	or type 35	)		
<b>f</b> Lug dimensions:	F less '	1 mm;	B1 plus	2 mm	(see	page 4)									
_	•		oad [kN]								,_	_			load-
Туре	100		350°C								d2	Е	В	kg	group
42 35 69	5.3	3.9	2.8								M20	220	60	5.7	3-4
	•		oad [kN]												load-
Туре	100		350°C								d1	Е	В	kg	group
43 35 68	9.3	9	8.5								16	375	80	19	1-3
43 35 69	31	23	16								24	375	80	19	3-6
	•		oad [kN]												load-
Type	100		350°C								d3	Е	В	kg	group
44 35 62	44	38	28								46	400	75	20	6-8
44 35 63	70	60	53								51	420	115	30	6-9
			oad [kN]						L	-	Туре	46 kg	Type	48 kg	load-
Type	100	250	350°C	d3	$d_N$	E <sub>K</sub>	$E_R$	N	min	max	min	max	min	max	group
46 35 61 / 48 35 61R	37	29	21	34	137	35	120	400	700	1300	35	66	30	65	4-6
46 35 62 / 48 35 62R	66	50	38	34	137	40	130	400	700	1300	50	91	43	82	4-6
46 35 63 / 48 35 63R	93	72	53	46	137	60	145	400	700	1300	60	107	51	95	6-8
				perm	issible	load [kN	1								
	dowr	nwards	(Fz)		eral (F		_	vards (-	·Fz)						
Type	100	250	350°C	100		350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 35 64	26	22	21		0% x		-	-	-	376	300	235	460	200	34.7
49 35 65 HL	78	66	63		0% x		-	-	-	376	300	245	430	200	47.6
49 35 65 GS•	78	66	63	39	33	32	23	20	19	376	430	250	430	200	90.6
49 35 65 FP•	78	66	63	39	33	32	23	20	19	376	430	250	430	200	86.1
Dimension for Lift of						-									
<ul> <li>Trunnion design:</li> </ul>															
3				•••											
	permis	sible lo	ad [kN]	in eac	h foot	direction									
Type	100		350°C	540		an ootion				Е	Α	В	С	Н	kg
49 35 64 G2A	26	22	21							376	300	235	460	200	58
49 35 64 G2P,	26	22	21							376	300	235	460	200	58
49 35 64 G3	26	22	21							376	300	235	460	200	81
49 35 64 G4	26	22	21							376	300	235	460	200	105
49 35 65 HL G2P	78	66	63							376	300	245	430	200	84
, For special applica	_									0,0	000	270	100	200	04
, i oi opoolai applioi		- page	30,00												



Document No.: 900081-4

Page 23 / 36

Rev.: 4

	permis	sible lo	oad [kN]									L	k	g	load
Type	100	250						Е	$d_N^{+0,1}$	N	min	max	min	max	group
34 38 64R										400					
	36	27 60	19					129	129		700	1300	57	86	4
34 38 65R 34 38 66R	92 200	130	48 105					147 190	129 129	400 400	700 700	1300 1300	83 136	121 196	5
34 36 bor	200	130	105					190	129	400	700	1300	130	196	6
	permiss	sible lo	oad [kN]						,						max•
Type	100	250	350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadg
36 38 61	37	35	34					20	410	460	60	40	11	25	5
36 38 62	65	57	48					30	410	470	60	45	13	30	6
36 38 63	100	100	90					30	410	490	60	60	13	41	6
36 38 64	164	151	138					50	425	470	120	90	16	62	7
36 38 65	276	230	160					60	450	490	120	120	21	96	8
The connecting leading le	oad grou	up has	to be st	ated i	n the c	order.									
, E dimension at m	nax. load	darour	o - at sm	aller lo	oad gr	oup reduc	ction by	the diffe	erence of	the E dir	mension	of type 3	5		
<b>f</b> Lug dimensions:							,					71			
_	•		ad [kN]									_			load
Type	100		350°C								d2	E	В	kg	grou
42 38 69	5.1	3.9	2.8								M20	230	60	5.8	3-4
	permiss	sible lo	oad [kN]												load
Type	100	250	350°C								d1	Е	В	kg	grou
43 38 68	9.3	9.0	8.5								16	395	90	19	1-3
43 38 69	30	22	16								24	395	90	19	3-6
	•		oad [kN]												load
Type	100	250	350°C								d3	Е	В	kg	grou
44 38 62	44	38	27								46	405	75	21	6-8
44 38 63	70	60	53								51	425	115	32	6-9
	permiss	sible lo	oad [kN]						L		ka / T	ype 46	ka / Tv	ype 48	load
Type	100	250	350°C	d3	$d_N$	Eκ	$E_R$	N	min	max	min	max	min	max	grou
46 38 61 / 48 38 61R	37	29	21	34	137	35	120	400	700	1300	37	67	31	65	4-6
46 38 62 / 48 38 62R	66	50	38	34	137	40	130	400	700	1300	53	94	44	82	4-6
46 38 63 / 48 38 63R	93	72	53	46	137	60	145	400	700	1300	64	111	52	95	6-8
+0 30 03 / 40 30 03K	33	12	55	40	131	00	140	400	700	1300	04		32	90	0-0
				perm	issible	load [kN	]								
	down	wards	(Fz)	late	eral (F	x, Fy)	upv	vards (-	Fz)						
Type	100	250	350°C	100		350°C	100	250	350°C	Е	Α	В	С	Н	kg
9 38 64	27	23	22		0% x		-	-	-	389	300	240	460	200	36
9 38 65 HL	81	69	66		0% x		-	-	-	389	300	250	470	200	49
9 38 65 GS•	81	69	66	41	35	33	24	21	20	389	470	300	470	200	105
9 38 65 FP•	81	69	66	41	35	33	24	21	20	389	470	300	470	200	100
Dimension for Lift of	restrair	nts / w	eld sizes	see	page 3	3									
<ul><li>Trunnion design:</li></ul>	trunnion	n hole	diamete	$d_N =$	135 n	nm									
			1 5. 5												
	permiss 100		ad [kN] 350°C	n eac	n toot	direction				Е	Α	В	С	Н	kg
Type		230	22							389	300	240	460	200	60.6
Type	27		~~							389	300	240	460	200	60.6
9 38 64 G2A	27												400	<b>ZUU</b>	00.0
9 38 64 G2A 9 38 64 G2P,	27	23	22												95 4
19 38 64 G2A 19 38 64 G2P, 19 38 64 G3	27 27	23 23	22 22							389	300	240	460	200	85.1
19 38 64 G2A 19 38 64 G2P,	27	23	22												85.1 110 85.3



Document No.: 900081-4

Page 24 / 36

Rev.: 4

		ما ماداد	I [I - N I]												laad
_			ad [kN]					_	+0.1			L		<b>k</b> g	load
Type	100		350°C					E	$d_N^{+0,1}$	N	min	max	min	max	group
34 43 64R	36	27	19					132	129	458	800	1400	66	97	4
34 43 65R	92	60	48					152	129	458	800	1400	95	134	5
34 43 66R	200	132	106					199	129	458	800	1400	161	223	6
	normic	ciblo lo	ad [kN]												max•
_	•							14 .	_′		_	5.4			
Type	100		350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
36 43 61	37	35	34					20	450	500	60	40	11	24	5
36 43 62 36 43 63	65	57	45					30	450	510	60	45	13	30	6
36 43 64	100	100 148	84					30	450 465	525 510	60	60	13 16	44 63	6 7
36 43 65	162 272	250	135 218					50 60	490	525	120 120	90 120	21	103	8
								00	490	323	120	120	21	103	0
The connecting I															
, E dimension at m	nax. Ioac	d group	o - at sm	aller lo	oad gro	oup reduc	ction by	the diff	erence of	the E di	mension	of type 3	5		
<b>f</b> Lug dimensions:	F less 1	l mm;	B1 plus	2 mm	(see	page 4)									
			•												
	permis		ad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 43 69	7.7	5.8	4.1								M24	265	70	8.9	3-5
	•	sible lo	ad [kN]												load-
Type	100	250	350°C								d1	Е	В	kg	group
43 43 68	9.3	9.0	8.5								16	440	100	23	1-3
43 43 69	29	21	15								24	440	100	23	3-6
	permis	sible lo	ad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 43 62	59	45	37								51	450	80	26	6-9
44 43 65	150	110	82								61	465	145	63	7-10
	permis	sible lo	ad [kN]						l	_	kg / T	ype 46	kg / T	ype 48	load-
Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	group
46 43 61 / 48 43 61R	44	35	25	34	137	30	155	458	800	1400	51	88	40	83	4-6
46 43 62 / 48 43 62R	72	55	41	41	137	40	160	458	800	1400	70	112	53	93	5-7
46 43 63 / 48 43 63R	110	84	63	46	137	55	175	458	800	1400	89	138	69	131	6-8
				perm	issible	load [kN	]								
	dowr	wards	(Fz)	late	eral (F	k, Fy)	up	wards (-	·Fz)						
Type	100	250	350°C	100		350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 43 64	48	38	35	30	0% x	Fz	-	-	-	413	300	240	480	200	47
49 43 65 HL	144	114	105		0% x		-	-	-	413	300	245	480	200	49
49 43 65 GS•	144	114	105	72	57	53	43	34	32	413	480	350	480	200	131
49 43 65 FP •	144	114	105	72	57	53	43	34	32	413	480	350	480	200	125
Dimension for Lift of	f restraiı	nts / w	eld sizes	see p	page 3	3									
<ul> <li>Trunnion design:</li> </ul>	trunnio	n hole	diamete	$r d_N =$	135 m	nm									
	permiss	sible lo	ad [kN]	in eac	h foot	direction									
Type	100		350°C							Е	Α	В	С	Н	kg
49 43 64 G2A	48	38	35							413	300	240	480	200	76
49 43 64 G2P	48	38	35							413	300	240	480	200	76
49 43 64 G3	48	38	35							413	300	240	480	200	105
49 43 64 G4	48	38	35							413	300	240	480	200	135
49 43 65 HL G2P	144	114	105							413	300	245	480	200	117
.5 10 00 112 021			.00							. 10	500		.00	_00	



Document No.: 900081-4

Page 25 / 36

Rev.: 4

			oad [kN]						. +0.1			L	k		load
Type	100		350°C					Е	$d_{N}^{+0,1}$	N	min	max	min	max	group
34 47 64R	36	26	19					138	155	497	850	1450	75	108	4
34 47 65R	92	61	48					159	155	497	850	1450	109	152	5
34 47 66R	200	132	105					205	155	497	850	1450	177	243	6
	permis	sible lo	oad [kN]						,						max•
Type	100	250	350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
37 47 61	88	65	48					30	475	545	155	130	13	40	6
37 47 62	132	100	73					50	490	465	180	150	16	64	7
37 47 67	265	200	145					60	515	540	240	200	16	137	8
37 47 68	350	290	216					60	535	544	320	240	21	175	8
<ul> <li>The connecting I</li> </ul>	oad gro	up has	to be st	ated ir	the c	rder.									
, E dimension at m							tion by	the diff	erence of	the E di	mension	of type 3	5		
f Lug dimensions:									0.000			0. 1,700 0.			
J Lug ullilensions.	1 1633	,	D i pius	Z 111111	( 366	page 4)									
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 47 69	7.2	5.4	3.8								M24	285	70	9.6	3-5
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d1	Е	В	kg	group
43 47 68	8.8	8.5	8.0								16	460	100	25	1-3
43 47 69	28	20	14								24	460	100	25	3-6
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 47 64	59	50	30								51	475	105	36	6-9
44 47 65	70	62	49								51	475	115	41	7-9
44 47 66	150	110	82								61	485	145	66	7-10
			oad [kN]						L	-	kg/T	ype 46	kg / Ty	ype 48	load-
Туре	100	250	350°C	d3	$d_N$	E <sub>K</sub>	$E_R$	N	min	max	min	max	min	max	group
46 47 61 / 48 47 61R	45	35	25	34	164	35	150	497	850	1450	58	98	51	97	4-6
46 47 62 / 48 47 62R	59	46	33	41	164	40	155	497	850	1450	68	111	57	104	5-7
46 47 63 / 48 47 63R	120	92	69	46	164	50	170	497	850	1450	109	162	88	144	6-8
46 47 64 / 48 47 64R	150	112	88	51	164	60	185	497	850	1450	121	178	85	168	6-9
				norm	iccibla	lood [kN]	1								
	dowr	nwards	· (E-)	•	ral (F	load [kN]		vards (-	<b>⊏</b> -\						
Type	100	250	350°C	100	•	350°C	100	250	350°C	Е	Α	В	С	Н	ka
49 47 64	67	51	37		230 0% x		-	230	-	433	350	260	500	200	kg 49
49 47 65 HL	153	153	111		0% x		-		_	433	350	260	530	200	76
49 47 65 GS•	153	153	111	77	77	56	46	46	33	433	520	350	530	200	141
49 47 65 FP•	153	153	111	77	77	56	46	46	33	433	520	350	530	200	133
Dimension for Lift of															
<ul> <li>Trunnion design:</li> </ul>															
- J															
	permis	sible lo	ad [kN]	in eac	h foot	direction									
Type	100		350°C	545		000071				Е	Α	В	С	Н	kg
49 47 64 G2A	67	51	37							433	350	260	500	200	79
49 47 64 G2P	67	51	37							433	350	260	500	200	79
49 47 64 G3	67	51	37							433	350	260	500	200	109
49 47 64 G4	67	51	37							433	350	260	500	200	138
49 47 65 HL G2P	153	153	111							433	350	260	530	200	132



Document No.: 900081-4

Page 26 / 36

Rev.: 4

# Selection table OD 530

	normio	ciblo la	and [kNI]									<u></u>	را	a	load
T			oad [kN]					_	d <sub>N</sub> <sup>+0,1</sup>	N.			k		
Type	100		350°C					E		N	min	max	min	max	group
34 53 64R	36	27	19					140	155	562	900	1500	83	117	4
34 53 65R	92	61	48					163	155	562	900	1500	121	165	5
34 53 66R	200	132	105					207	155	562	900	1500	196	264	6
	permis	sible lo	oad [kN]						,						max•
Type	100	250	350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
37 53 61	75	57	41					30	525	615	155	130	13	46	
37 53 62	126	100	73					50	540	640	170	135	13	70	
37 53 63	180	137	100					60	570	650	210	180	16	109	8
37 53 64	270	195	153					70	610	675	330	260	21	191	9
37 53 67	356	269	195					70	610	610	310	230	21	220	
The connecting I	oad gro	un has	to be st	ated in	n the o	rder									
							ation by	the diff	orongo of	the E di	monoion	of tupo 26	-		
, E dimension at n							ction by	the diff	erence or	the E all	mension	or type 33	)		
<b>f</b> Lug dimensions:	F less '	1 mm;	B1 plus	2 mm	(see	page 4)									
_	•		oad [kN]									_			load-
Туре	100		350°C								d2	Е	В	kg	group
42 53 69	18	13	9.9								M30	335	90	21	5-6
		sible lo	oad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 53 64	10	8	7								21	510	80	26	1-4
44 53 65	29	24	17								34	510	80	28	4-6
44 53 66	57	46	35								51	515	90	37	6-9
44 53 67	98	72	60								61	515	120	59	7-10
44 53 68	196	150	120								71	535	195	112	8-30
	permis	sible lo	oad [kN]						L	_	kg / T	ype 46	kg / Ty	ype 48	load-
Type	100	250	350°C	d3	$d_N$	Eκ	$E_R$	N	min	max	min	max	min	max	group
46 53 61 / 48 53 61R	45	35	25	34	164	35	160	562	900	1500	68	109	60	104	4-6
46 53 62 / 48 53 62R	68	51	37	41	164	40	175	562	900	1500	92	133	66	117	5-7
46 53 63 / 48 53 63R	120	92	67	46	164	60	175	562	900	1500	124	178	86	155	6-8
46 53 64 / 48 53 64R	170	125	100	51	164	65	180	562	900	1500	151	215	100	179	6-9
				perm	issihle	load [kN	11								
	dowr	nwards	(Fz)		eral (F)			wards (-	Fz)						
Type	100	250	350°C	100		350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 53 64	82	62	45		0% x		-	-	-	465	350	280	520	200	73
49 53 65 HL	246	186	135		0% x		-			465	350	280	550	200	101
49 53 65 GS •	246	186	135	123	93	68	74	56	41	465	505	450	520	200	187
49 53 65 FP•	246	186	135	123	93	68	74	56	41	465	505	450	520	200	181
Dimension for Lift of							7-7	30	71	700	000	700	020	200	101
Trunnion design:					_										
Traininon design.			alamote	. u <sub>N</sub> –	10111										
	n o rmi-	ما مامانه	ad IIAII	in ac-	h foat	divo oticis									
_	•			ın eac	n toot	direction				_		_	_		
Type	100		350°C							E	A	В	С	Н	kg
49 53 64 G2A	82	62	45							465	350	280	520	200	103
49 53 64 G2P	82	62	45							465	350	280	520	200	103
49 53 64 G3	82	62	45							465	350	280	520	200	132
49 53 64 G4	82	62	45							465	350	280	520	200	162
49 53 65 HL G2P	246	186	135							465	350	280	550	200	158



37 63 64

37 63 67

Document No.: 900081-4

Page 27 / 36

Rev.: 4

#### Selection table OD 630

	permis	sible lo	oad [kN]				- 1	L	k	g	load
Type	100	250	350°C	E	$d_{N}^{+0,2}$	N	min	max	min	max	group
34 63 65R	92	60	48	180	215	662	1000	1600	157	209	5
34 63 66R	200	132	105	224	215	662	1000	1600	253	332	6
34 63 67R	400	265	210	243	215	662	1000	1600	432	556	7
	permis	sible lo	oad [kN]		,						max•
Type	100	250	350°C	d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
37 63 61	75	57	41	30	585	715	155	130	16	51	6
37 63 62	126	100	73	50	600	740	170	135	16	78	7
37 63 63	182	137	100	60	630	750	210	180	16	119	8

37 63 68 529 399 288

The connecting load group has to be stated in the order.

- , E dimension at max. load group at smaller load group reduction by the difference of the E dimension of type 35
- f Lug dimensions: F less 1 mm; B1 plus 2 mm ( see page 4)

<b>f</b> Lug almensions:	r iess	i mm;	B1 plus	z mm	( see p	age 4)									
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 63 69	16	12	8.8								M30	385	90	25	5-6
	permis	sible lo	ad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 63 64	29	24	20								34	570	100	38	3-6
44 63 65	58	45	35								51	570	95	45	6-9
44 63 66	80	65	48								51	570	115	51	6-9
44 63 67	116	87	73								61	570	150	77	7-10
44 63 68	200	158	120								71	590	195	120	8-30
	permis	sible lo	oad [kN]							L	kg / T	ype 46	kg / Ty	pe 48	load-
Type	100	250	350°C	d3	$d_N$	$E_K$	$E_R$	N	min	max	min	max	min	max	group
46 63 61 / 48 63 61R	60	47	34	41	224	40	185	662	1000	1600	108	154	94	156	4-7
46 63 62 / 48 63 62R	90	69	51	46	224	45	195	662	1000	1600	130	183	107	175	6-8
46 63 63 / 48 63 63R	127	96	76	51	224	51	190	662	1000	1600	165	221	126	206	6-9
46 63 64 / 48 63 64R	186	138	111	51	224	55	205	662	1000	1600	203	277	133	236	7-9
46 63 65 / 48 63 65R	223	165	132	61	224	65	230	662	1000	1600	229	309	147	255	7-10
		. 00													

				permi	ssible	load [kN	l]								
	dowr	nwards	(Fz)	late	ral (F	κ, Fy)	upv	vards (-	·Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 63 64	105	80	58	30	% x	Fz	-	-	-	515	400	310	590	200	96
49 63 65 HL	325	217	174	50	% x	Fz	-	-	-	515	550	350	595	200	142
49 63 65 GS •	325	217	174	162	109	87	65	51	38	515	580	550	595	200	221
49 63 65 FP •	325	217	174	162	109	87	65	51	38	515	580	550	595	200	214
Dimension for Lift of	ff restrai	nts / w	eld sizes	see n	ane 3	3									

<sup>•</sup> Trunnion design: trunnion hole diameter  $d_N = 222 \text{ mm}$ 

	permis	sible lo	oad [kN] in	each foot direction						
Type	100	250	350°C		Е	Α	В	С	Н	kg
49 63 64 G2A	105	80	58		515	400	310	590	200	142
49 63 64 G2P	105	80	58		515	400	310	590	200	142
49 63 64 G3	105	80	58		515	400	310	590	200	188
49 63 64 G4	105	80	58		515	400	310	590	200	234
49 63 65 HL G2P	325	217	174		515	550	350	595	200	230



Document No.: 900081-4

Page 28 / 36

Rev.: 4

	permis	sible lo	oad [kN]				l	_	k	g	load
Type	100	250	350°C	E	$d_{N}^{+0,2}$	N	min	max	min	max	group
34 72 65R	92	60	48	186	215	752	1100	1700	183	237	5
34 72 66R	200	130	104	227	215	752	1100	1700	303	383	6
34 72 67R	400	265	210	246	215	752	1100	1700	503	630	7
	normie	eible la	nad [kN]								may •

	permis	sible lo	ad [kN]		,						max•
Type	100	250	350°C	d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
37 72 61	75	57	41	30	640	810	155	130	16	55	6
37 72 62	126	96	68	50	655	830	170	135	16	83	7
37 72 63	182	138	100	60	685	840	210	180	16	127	8
37 72 64	272	200	156	70	725	865	290	260	16	219	9
37 72 65	335	244	186	70	725	885	330	260	21	251	9
37 72 68	529	401	291	70	725	815	330	250	21	346	9

- The connecting load group has to be stated in the order.
- , E dimension at max. load group at smaller load group reduction by the difference of the E dimension of type 35
- f Lug dimensions: F less 1 mm; B1 plus 2 mm ( see page 4)

	perm	issible l	oad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 72 69	14	10	7.7								M30	430	90	28	5-6
	perm	issible l	oad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 72 6		36	30								41	635	105	59	4-7
44 72 6	5 95	75	60								51	635	120	73	6-9
44 72 6		88	72								61	635	130	83	7-10
44 72 6		120	88								71	635	165	99	8-30
44 72 6		145	115								71	635	195	125	8-30
44 72 6	9 307	225	172								71	655	225	201	9-30
	perm	issible l	oad [kN]						ļ	L	kg / T	ype 46	kg / Ty	/pe 48	load-
Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	group
4.• 72 6	1 74	57	42	41	224	45	195	752	1100	1700	144	193	122	187	5-7
4. 72 6	2 118	90	70	46	224	55	240	752	1100	1700	191	247	144	226	6-8
4. 72 6	3 180	133	105	51	224	60	225	752	1100	1700	238	316	158	263	7-9
4. 72 6	4 236	175	142	51	224	80	230	752	1100	1700	314	375	181	296	7-9

4. 72 64	236	1/5	142	51	224	80	230	752	1100	1700	314	3/5	181	296	7-9
4. 72 65	275	200	160	61	224	80	230	752	1100	1700	334	411	191	314	8-10
• second digit:	6 = type 4	6; 8 =	type 48	3											

				perm	issible	load [kN	I]								
	dowr	nwards	(Fz)	late	ral (F	κ, Fy)	upv	vards (-	·Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 72 64	130	100	72	30	)% x	Fz	-	-	-	560	400	350	590	200	108
49 72 65 HL	405	274	216	50	)% x	Fz	-	-	-	560	550	450	595	200	171
49 72 65 GS •	405	274	216	203	137	108	122	82	65	560	580	500	595	200	357
49 72 65 FP •	405	274	216	203	137	108	122	82	65	560	580	500	595	200	333
Dimension for Lift of	f restrai	nts / w	eld sizes	S SEE T	ane 3	3									

<sup>•</sup> Trunnion design: trunnion hole diameter  $d_N = 222 \text{ mm}$ 

	permis	sible lo	ad [kN] i	n each foot direction						
Type	100	250	350°C		Е	Α	В	С	Н	kg
49 72 64 G2A	130	100	72		560	400	350	590	200	160
49 72 64 G2P	130	100	72		560	400	350	590	200	160
49 72 64 G3	130	100	72		560	400	350	590	200	212
49 72 64 G4	130	100	72		560	400	350	590	200	264
49 72 65 HL G2P	405	274	216		560	550	450	595	200	282



Type 49 82 64 G2A 49 82 64 G2P 49 82 64 G3 49 82 64 G4

49 82 65 HL G2P

250 350°C

Document No.: 900081-4

Page 29 / 36

Rev.: 4

#### Selection table OD 820

	pormic	ciblo k	ood [kNI]									_	k	α.	load
T	•		oad [kN]					_	$d_{N}^{+0,2}$	N.			k	-	
Type	100		350°C					E		N	min	max	min	max	group
34 82 65R	92	64	50					204	268	852	1200	1800	228	291	5
34 82 66R	200	132	105					248	268	852	1200	1800	354	445	6
34 82 67R	400	265	210					261	268	852	1200	1800	613	756	7
			1.51.5.13												
	•		oad [kN]						, r						max•
Туре	100		350°C					d1 •	Emax	A	В	B1	F <b></b>		loadgr
37 82 61	74	56	40					30	705	910	155	130	16	60	6
37 82 62	125	100	71					50	720	930	170	135	16	90	7
37 82 63	181	137	100					60	750	940	210	180	16	146	8
37 82 64	274	208	150					70	790	965	290	260	16	237	9
37 82 65	335	244	186					70	790	985	290	260	21	271	9
37 82 66 37 82 68	400 529	300 400	233 288					70 70	790	990 915	295	260	21 21	300 374	9
								70	790	915	330	250	21	3/4	9
<ul> <li>The connectin</li> </ul>	-														
, E dimension a	it max. load	d group	o - at sm	aller lo	oad gro	oup redu	ction by	the diff	erence of	the E di	mension	of type 3	5		
<b>f</b> Lug dimension	ns: F less	1 mm;	B1 plus	2 mm	(see	page 4)									
					,	,									
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 82 69	14	10	7.4								M30	485	90	31	5-6
	permis	sible lo	oad [kN]												load-
Type	100		350°C								d3	Е	В	kg	group
44 82 64	54	42	34								41	700	135	76	4-7
44 82 65	90	70	57								51	705	120	78	6-9
44 82 66	122	88	71								61	705	130	90	7-10
44 82 67	153	115	87								71	705	165	110	8-30
44 82 68	205	165	125								71	705	205	166	8-30
44 82 69	307	225	170								71	725	210	199	9-30
	permis	sible lo	oad [kN]						L	_	kg / T	/pe 46	kg / Ty	/pe 48	load-
Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	group
4. • 82 61	90	69	55	46	279	46	215	852	1200	1800	203	256	171	259	5-8
4. 82 62	135	100	80	51	279	60	240	852	1200	1800	253	315	192	340	6-9
4. 82 63	212	155	123	61	279	70	255	852	1200	1800	334	408	213	344	7-10
4. 82 64	276	205	163	61	279	90	245	852	1200	1800	409	484	244	387	8-10
4. 82 65	330	245	195	71	279	100	265	852	1200	1800	519	607	266	425	9-30
<ul><li>second digit:</li></ul>	6 = type 4	l6: 8 =	= tvpe 48	3											
J	,	•	,,												
				nerm	issible	load [kN	J1								
	dowr	nwards	(Fz)	•	eral (F)	_	-	wards (-	·Fz)						
Type	100	250	350°C	100	•	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 82 64	150	117	86		0% x		-	-	-	610	400	400	590	200	121
49 82 65 HL	480	320	258		0% x	Fz		-	_	610	570	530	600	200	215
49 82 65 GS•	480	320	258	240	160	129	95	75	55	610	585	700	600	200	348
49 82 65 FP•	480	320	258	240	160	129	95	75	55	610	585	700	600	200	331
Dimension for Lift															
Trunnion designment															
	J GI II 110			. ~ <sub>IV</sub> -	0 //										
	nermic	cible la	ad [kN]	in esc	h foot	direction									
Typo	•		SEU.C	ııı <del>c</del> ac	11 1001	unection				_	۸	D	C	ш	ka

E 

A 

B 

kg 



Type 49 87 64 G2A

49 87 64 G2P 49 87 64 G3

49 87 64 G4

49 87 65 HL G2P

250 350°C

Document No.: 900081-4

Page 30 / 36

Rev.: 4

#### Selection table OD 870

	permis	sible lo	oad [kN]								l	L	k	g	load
Type	100	250	350°C					Е	$d_{N}^{+0,2}$	N	min	max	min	max	group
34 87 65R	92	64	50					204	268	902	1200	1800	234	296	5
34 87 66R	200	132	105					248	268	902	1200	1800	362	453	6
34 87 67R	400	265	210					261	268	902	1200	1800	626	770	7
															·
	permis	sible lo	oad [kN]						,						max•
Type	100	250	350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
37 87 61	74	56	40					30	730	960	155	130	16	66	6
37 87 62	125	100	71					50	745	982	170	135	16	100	7
37 87 63	181	137	100					60	775	992	210	180	16	149	8
37 87 64	274	208	150					70	815	1017	290	260	16	244	9
37 87 65	335	244	186					70	815	1037	290	260	21	272	9
37 87 66	400	300	233					70	815	1042	295	260	21	301	9
37 87 68	529	400	288					70	815	967	330	250	21	391	9
The connecting		up has		ated in	n the c	rder.									
, E dimension at		•					ction by	the diff	erence of	the F di	mension	of type 35	5		
f Lug dimensions		٠ .			Ŭ	•			0.000			o. 1, po o			
Lug ulmensions	5. 1 1633	1 1111111,	D i pius	Z 111111	( 366	page 4)									
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 87 69	14	10	7.4								M30	510	90	33	5-6
42 07 03	17	10	7.7								IVIOU	310	50	33	3-0
	permis	sible lo	oad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 87 64	54	42	34								41	725	135	83	4-7
44 87 65	90	70	57								51	730	120	84	6-9
44 87 66	122	88	71								61	730	130	97	7-10
44 87 67	153	115	87								71	730	165	118	8-30
44 87 68	205	165	125								71	730	205	160	8-30
44 87 69	307	225	170								71	750	210	208	9-30
44 07 00	001	220	170									700	210	200	0 00
	permis	sible lo	oad [kN]						L	_	kg / T	ype 46	kg / Ty	ype 48	load-
Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	group
4. • 87 61	96	71	57	46	279	47	215	902	1200	1800	228	284	181	271	5-8
4. 87 62	135	100	80	51	279	60	240	902	1200	1800	295	332	196	345	6-9
4. 87 63	215	155	125	61	279	70	255	902	1200	1800	413	437	219	348	7-10
4. 87 64	280	205	165	61	279	90	245	902	1200	1800	511	511	252	393	8-10
4. 87 65	335	245	195	71	279	100	265	902	1200	1800	574	559	272	431	9-30
	6 = type 4							002	.200		0	000		.0.	0 00
3000 la digit.	J – type ¬	ю, о-	- type <del>-</del> t	•											
				perm	issible	load [kN	J1								
	dowr	nwards	(Fz)		eral (F	_	_	wards (-	·Fz)						
Type	100	250	350°C	100		350°C	100	250	350°C	Е	Α	В	С	Н	kg
1 ype 49 87 64	235	163	132		0% x		-	250	330 C	635	450	420	650	200	141
49 87 65 HL	740	495	396		0% X					635	600	640	625	200	281
49 87 65 GS •	740	495	396	370	247	198	90	- 70	- 50	635	585	750	625	200	455
49 87 65 GS • 49 87 65 FP •	740 740		396			198									
		495		370	247		90	70	50	635	585	750	625	200	431
Dimension for Lift of					•										
<ul> <li>Trunnion design</li> </ul>	n: trunnio	n noie	diamete	$r a_N =$	2/6 m	ım									
						P									
Tyroo			ad [kN]	ın eac	n toot	direction	1			_	^	D	0	ы	ka
11/00	7/1/1	7611	APITOL,								^				L/O

E 

A 

kg 



Document No.: 900081-4

Page 31 / 36

Rev.: 4

# Selection table OD 1020 (1016)

				. ,								
	permis	sible lo	oad [kN]					ļ	L	k	g	load
Type	100	250	350°C		Е	$d_{N}^{+0,2}$	N	min	max	min	max	group
34 T0 66R	200	132	105		279	319	1052	1600	2200	515	623	6
34 T0 67R	400	265	210		294	319	1052	1600	2200	837	1005	7
34 T0 68R	700	465	370		345	319	1052	1600	2200	1217	1440	8
	permis	sible lo	oad [kN]			,						max•
Type	100	250	350°C		d1 •	Emax	Α	В	B1	F <b></b>	kg	loadgr
37 T0 61	74	56	40		30	810	1105	160	130	16	76	6
37 T0 62	120	94	67		50	825	1130	180	150	16	111	7
37 T0 63	181	137	100		60	855	1130	230	195	16	164	8
37 T0 64	277	211	151		70	895	1165	290	260	16	264	9
37 T0 65	335	244	186		70	895	1185	290	260	21	298	9
37 T0 66	400	300	233		70	895	1190	300	270	21	356	9
37 T0 68	534	404	291		70	895	1115	330	250	21	435	9
The connecting	load gro	up has	to be sta	ated in the order.								
, E dimension at	max. load	d group	o - at sma	aller load group reduction by	the diff	erence of	f the E di	mension	of type 35	5		
<b>f</b> Lug dimensions	s: F less	1 mm;	B1 plus 2	2 mm ( see page 4)								

	permis	sible lo	ad [kN]												load-
Type	100	250	350°C								d2	Е	В	kg	group
42 T0 69	27	21	14								M30	592	150	85	5-6
	permis	sible lo	ad [kN]												load-
Type	100	250	350°C								d3	Е	В	kg	group
44 T0 64	96	73	56								51	810	120	98	6-9
44 T0 65	149	112	87								61	810	165	137	7-10
44 T0 66	203	163	123								71	850	205	184	8-30
44 T0 67	283	213	168								71	850	220	251	9-30
44 T0 68	367	280	212								81	860	265	322	10-40
44 T0 69	395	346	258								91	915	265	370	20-50
	permis	sible lo	ad [kN]							L	kg / T	ype 46	kg / Ty	/pe 48	load-
Type	100	250	350°C	d3	$d_N$	$E_K$	$E_R$	N	min	max	min	max	min	max	group
4. • T0 61	96	71	57	46	330	50	295	1052	1600	2200	322	404	323	411	5-8
4. T0 62	135	100	80	51	330	60	300	1052	1600	2200	389	495	334	466	6-9
4. T0 63	215	155	125	61	330	70	315	1052	1600	2200	507	622	352	520	7-10
4. T0 64	320	230	180	61	330	90	330	1052	1600	2200	665	795	414	594	8-10
4. T0 65	480	345	270	71	330	100	330	1052	1600	2200	978	1036	506	766	9-30
4. T0 66	600	450	360	81	330	100	370	1052	1600	2200	1163	1237	604	864	10-40

•	second digit:	6 = type 46;	8 = type  48
---	---------------	--------------	--------------

				perm	issible	load [kN	1]								
	dowr	nwards	(Fz)	late	ral (F	k, Fy)	upv	vards (-	·Fz)						
Type	100	250	350°C	100	250	350°C	100	250	350°C	Е	Α	В	С	Н	kg
49 T0 64	302	217	176	30	)% x	Fz	-	-	-	708	450	470	710	200	251
49 T0 65 HL	995	665	528	50	)% x	Fz	-	-	-	708	670	610	735	200	428
49 T0 65 GS •	995	665	528	497	332	264	150	123	95	708	700	900	735	200	685
49 T0 65 FP •	995	665	528	497	332	264	150	123	95	708	700	900	735	200	645
Dimension for Lift o	ff roctroi	nto / w	ماط دنعمد	. coo r	2000	2									

Dimension for Lift off restraints / weld sizes see page 33 • Trunnion design: trunnion hole diameter  $d_N=328\ mm$ 

	permis	sible lo	ad [kN] ii	each foot direction	
Type	100	250	350°C	E A B C I	H kg
49 T0 64 G2A	302	217	176	708 450 470 710 20	00 332
49 T0 64 G2P	302	217	176	708 450 470 710 20	00 332
49 T0 64 G3	302	217	176	708 450 470 710 20	00 413
49 T0 64 G4	302	217	176	708 450 470 710 20	00 494
49 T0 65 HL G2P	995	665	528	708 670 610 735 20	00 684



Document No.: 900081-4

Page 32 / 36

Rev.: 4

#### Selection table OD 1220 (1219)

	permiss	sible lo	oad [kN]									L	k	g	load
Type	100	250	350°C					Е	$d_{N}^{+0,2}$	N	min	max	min	max	grou
34 T4 66R	200	132	105					298	370	1252	1800	2400	662	783	6
34 T4 67R	400	292	232					318	370	1252	1800	2400	1111	1306	7
34 T4 68R	700	465	370					363	370	1252	1800	2400	1567	1814	8
34 14 00IX	700	400	370					303	370	1202	1000	2400	1307	1014	O
	permiss	sible lo	oad [kN]						,						max•
Type	100	250	350°C					d1 •	Emax	Α	В	B1	F <b></b>	kg	loadg
37 T4 61	74	56	40					30	910	1310	160	130	16	93	6
37 T4 62	120	94	67					50	925	1335	180	150	16	136	7
37 T4 63	181	137						60		1335		195	16	195	8
			100						955		230				
37 T4 64	280	213	155					70	995	1370	290	260	16	310	9
37 T4 65	335	244	186					70	1005	1390	290	265	21	362	9
37 T4 66	400	300	233					70	1005	1395	310	280	21	416	9
37 T4 68	540	408	294			_		70	995	1320	330	250	21	531	9
The connecting I	_														
E dimension at m							ction by	the diffe	erence of	the E di	mension	of type 35	5		
F Lug dimensions:	F less 1	mm;	B1 plus	2 mm	(see	page 4)									
	permiss	sible lo	oad [kN]												load
Type	100		350°C								d2	Е	В	kg	grou
42 T4 69	24	18	13								M30	694	150	100	5-6
12 1 1 00															
	permiss	sible lo													load
Type	100	250	350°C								d3	Е	В	kg	grou
44 T4 64	96	73	56								51	910	120	119	6-9
44 T4 65	149	112	87								61	910	165	166	7-10
44 T4 66	203	163	125								71	950	205	216	8-30
44 T4 67	291	220	170								71	950	220	300	9-30
44 T4 68	367	286	209								81	1010	265	376	10-4
44 T4 69	395	342	258								91	1030	265	424	20-5
	permiss					_	_			-		ype 46	kg / Ty	/pe 48	load
Type	100	250	350°C	d3	$d_N$	Eĸ	$E_R$	N	min	max	min	max	min	max	grou
6 T4 61 / 48 T4 61R	O.C	71		46	383	50	295	1252	1800	2400	412	511	406	506	5-8
	96	7 1	57	70			000	4050	1800	2400	506	COL	404		
6 T4 62 / 48 T4 62R	135	100	80	51	383	60	300	1252	1000	2400	500	635	421	603	6-9
					383 383	60 70	315	1252	1800	2400	684	794	421 516	603 690	
6 T4 63 / 48 T4 63R	135	100	80	51			315			2400					7-1
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R	135 215 320	100 155 230	80 125 180	51 61 61	383 383	70 90	315 330	1252 1252	1800 1800	2400 2400	684 952	794 1037	516 567	690 793	7-10 8-10
16 T4 63 / 48 T4 63R 16 T4 64 / 48 T4 64R 16 T4 65 / 48 T4 65R	135 215	100 155	80 125	51 61	383	70	315	1252	1800	2400	684	794	516	690	8-10 9-30
46 T4 62 / 48 T4 62R 46 T4 63 / 48 T4 63R 46 T4 64 / 48 T4 64R 46 T4 65 / 48 T4 65R 46 T4 66 / 48 T4 66R	135 215 320 480	100 155 230 345	80 125 180 270	51 61 61 71 81	383 383 383 383	70 90 100 100	315 330 330 370	1252 1252 1252	1800 1800 1800	2400 2400 2400	684 952 1401	794 1037 1352	516 567 660	690 793 928	6-9 7-10 8-10 9-30 10-4
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R	135 215 320 480 600	100 155 230 345 450	80 125 180 270 360	51 61 61 71 81	383 383 383 383 issible	70 90 100 100	315 330 330 370	1252 1252 1252 1252	1800 1800 1800 1800	2400 2400 2400	684 952 1401	794 1037 1352	516 567 660	690 793 928	7-10 8-10 9-30
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R	135 215 320 480 600	100 155 230 345 450	80 125 180 270 360	51 61 61 71 81 perm	383 383 383 383 issible	70 90 100 100 e load [kN	315 330 330 370	1252 1252 1252 1252 1252 wards (-l	1800 1800 1800 1800 1800	2400 2400 2400 2400	684 952 1401 1516	794 1037 1352 1587	516 567 660 756	690 793 928 1129	7-10 8-10 9-30 10-4
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type	135 215 320 480 600 down 100	100 155 230 345 450 wards 250	80 125 180 270 360 (Fz) 350°C	51 61 61 71 81 perm late 100	383 383 383 383 issible eral (F) 250	70 90 100 100 load [kN x, Fy) 350°C	315 330 330 370	1252 1252 1252 1252	1800 1800 1800 1800	2400 2400 2400 2400	684 952 1401 1516	794 1037 1352 1587	516 567 660 756	690 793 928 1129	7-10 8-10 9-30 10-4
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64	135 215 320 480 600 down 100 302	100 155 230 345 450	80 125 180 270 360 (Fz) 350°C 178	51 61 61 71 81 perm late 100	383 383 383 383 issible ral (F) 250 0% x	70 90 100 100 k load [kN k, Fy) 350°C Fz	315 330 330 370	1252 1252 1252 1252 1252 wards (-l	1800 1800 1800 1800 1800	2400 2400 2400 2400 E 810	684 952 1401 1516	794 1037 1352 1587	516 567 660 756 C 710	690 793 928 1129 H 200	7-10 8-10 9-30 10-4 kg 293
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64	135 215 320 480 600 down 100	100 155 230 345 450 wards 250	80 125 180 270 360 (Fz) 350°C	51 61 61 71 81 perm late 100	383 383 383 383 issible eral (F) 250	70 90 100 100 k load [kN k, Fy) 350°C Fz	315 330 330 370	1252 1252 1252 1252 1252 wards (-l	1800 1800 1800 1800 1800	2400 2400 2400 2400	684 952 1401 1516	794 1037 1352 1587	516 567 660 756	690 793 928 1129	7-10 8-10 9-30 10-4 kg 293
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL	135 215 320 480 600 down 100 302	100 155 230 345 450 wards 250 219	80 125 180 270 360 (Fz) 350°C 178	51 61 61 71 81 perm late 100	383 383 383 383 issible eral (F) 250 0% x	70 90 100 100 k load [kN k, Fy) 350°C Fz	315 330 330 370 1] upv 100	1252 1252 1252 1252 1252 wards (-l 250	1800 1800 1800 1800 1800 Fz) 350°C	2400 2400 2400 2400 E 810	684 952 1401 1516 A 450 670	794 1037 1352 1587 B 560	516 567 660 756 C 710	690 793 928 1129 H 200	7-10 8-10 9-30 10-4 kg 293 473
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS •	135 215 320 480 600 down 100 302 1055 1055	100 155 230 345 450 wards 250 219 700 700	80 125 180 270 360 360 (Fz) 350°C 178 534 534	51 61 61 71 81 perm late 100 30 50 527	383 383 383 383 issible 250 0% x 0% x 350	70 90 100 100 e load [kN x, Fy) 350°C Fz Fz	315 330 330 370 Up 100 - 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810	684 952 1401 1516 A 450 670 780	794 1037 1352 1587 B 560 640 900	516 567 660 756 C 710 735 805	690 793 928 1129 H 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS • 9 T4 65 FP •	135 215 320 480 600 down 100 302 1055 1055	100 155 230 345 450 wards 250 219 700 700	80 125 180 270 360 * (Fz) 350°C 178 534 534 534	51 61 61 71 81 perm late 100 30 50 527 527	383 383 383 383 issible ral (F) 250 0% x 0% x 350 350	70 90 100 100 k load [kN k, Fy) 350°C Fz Fz 267 267	315 330 330 370 I] upv 100 -	1252 1252 1252 1252 1252 wards (-l 250 -	1800 1800 1800 1800 1800 Fz) 350°C	2400 2400 2400 2400 2400 E 810 810	684 952 1401 1516 A 450 670	794 1037 1352 1587 B 560 640	516 567 660 756 C 710 735	690 793 928 1129 H 200 200	7-10 8-10 9-30 10-4 kg 293 473 822
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS • 9 T4 65 FP • imension for Lift of	135 215 320 480 600 down 100 302 1055 1055 f restrair	100 155 230 345 450 wards 250 219 700 700 700 onts / w	80 125 180 270 360 * (Fz) 350°C 178 534 534 534 eld sizes	51 61 61 71 81 perm late 100 30 50 527 527 527 5 see p	383 383 383 issible eral (F) 250 0% x 0% x 350 350 page 3	70 90 100 100 e load [kN k, Fy) 350°C Fz Fz 267 267	315 330 330 370 Up 100 - 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810	684 952 1401 1516 A 450 670 780	794 1037 1352 1587 B 560 640 900	516 567 660 756 C 710 735 805	690 793 928 1129 H 200 200 200	7-10 8-10 9-30
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS • 9 T4 65 FP • imension for Lift of	135 215 320 480 600 down 100 302 1055 1055 f restrair	100 155 230 345 450 wards 250 219 700 700 700 onts / w	80 125 180 270 360 * (Fz) 350°C 178 534 534 534 eld sizes	51 61 61 71 81 perm late 100 30 50 527 527 527 5 see p	383 383 383 issible eral (F) 250 0% x 0% x 350 350 page 3	70 90 100 100 e load [kN k, Fy) 350°C Fz Fz 267 267	315 330 330 370 Up 100 - 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810	684 952 1401 1516 A 450 670 780	794 1037 1352 1587 B 560 640 900	516 567 660 756 C 710 735 805	690 793 928 1129 H 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS • 9 T4 65 FP • imension for Lift of Trunnion design:	135 215 320 480 600 down 100 302 1055 1055 f restrair trunnior	100 155 230 345 450 wards 250 219 700 700 700 nts / wn hole	80 125 180 270 360 (Fz) 350°C 178 534 534 534 eld sizes diamete	51 61 61 71 81 perm late 100 30 527 527 s see p	383 383 383 383 issible ral (F) 250 0% x 350 350 page 3 381 m	70 90 100 100 e load [kN k, Fy) 350°C Fz Fz 267 267	315 330 330 370 100 - 120 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 E 810 810 810	684 952 1401 1516 A 450 670 780 780	794 1037 1352 1587 B 560 640 900 900	516 567 660 756 C 710 735 805 805	690 793 928 1129 H 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822 770
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS• 9 T4 65 FP• Dimension for Lift of Trunnion design:	down 100 302 1055 1055 1055 1055 1 trunnior permiss 100	100 155 230 345 450 wards 250 219 700 700 700 nts / wn hole	80 125 180 270 360 (Fz) 350°C 178 534 534 534 6ld sizes diamete	51 61 61 71 81 perm late 100 30 527 527 s see p	383 383 383 383 issible ral (F) 250 0% x 350 350 page 3 381 m	70 90 100 100 8 load [kN x, Fy) 350°C Fz Fz 267 267 3	315 330 330 370 100 - 120 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810 810	684 952 1401 1516 A 450 670 780 780	794 1037 1352 1587 B 560 640 900 900	516 567 660 756 C 710 735 805 805	690 793 928 1129 H 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822 770
6 T4 63 / 48 T4 63R 6 T4 64 / 48 T4 64R 6 T4 65 / 48 T4 65R 6 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS• 9 T4 65 FP• Dimension for Lift of Trunnion design:	135 215 320 480 600 down 100 302 1055 1055 f restrair trunnior	100 155 230 345 450 wards 250 219 700 700 700 nts / wn hole	80 125 180 270 360 (Fz) 350°C 178 534 534 534 eld sizes diamete	51 61 61 71 81 perm late 100 30 527 527 s see p	383 383 383 383 issible ral (F) 250 0% x 350 350 page 3 381 m	70 90 100 100 8 load [kN x, Fy) 350°C Fz Fz 267 267 3	315 330 330 370 100 - 120 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 E 810 810 810	684 952 1401 1516 A 450 670 780 780	794 1037 1352 1587 B 560 640 900 900	516 567 660 756 C 710 735 805 805	690 793 928 1129 H 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822 770
16 T4 63 / 48 T4 63R 16 T4 64 / 48 T4 64R 16 T4 65 / 48 T4 65R 16 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 GS 9 T4 65 FP 10 Trunnion design: Type 9 T4 64 G2A	down 100 302 1055 1055 1055 1055 1 trunnior permiss 100	100 155 230 345 450 wards 250 219 700 700 700 nts / wn hole	80 125 180 270 360 (Fz) 350°C 178 534 534 534 6ld sizes diamete	51 61 61 71 81 perm late 100 30 527 527 s see p	383 383 383 383 issible ral (F) 250 0% x 350 350 page 3 381 m	70 90 100 100 8 load [kN x, Fy) 350°C Fz Fz 267 267 3	315 330 330 370 100 - 120 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810 810	684 952 1401 1516 A 450 670 780 780	794 1037 1352 1587 B 560 640 900 900	516 567 660 756 C 710 735 805 805	690 793 928 1129 H 200 200 200	7-11 8-11 9-33 10-4 kg 293 473 822 770 kg 386
Type 9 T4 64 G5 FP 9 T4 64 G5 FP 10 Trunnion design:  Type 9 T4 64 G2A 9 T4 64 G2A 9 T4 64 G2A	down 100 302 1055 1055 1055 1055 f restrair trunnior permiss 100 302	100 155 230 345 450 awards 250 219 700 700 700 700 nts / wn hole sible lo 250 219	80 125 180 270 360 350°C 178 534 534 534 61d sizes diamete	51 61 61 71 81 perm late 100 30 527 527 s see p	383 383 383 383 issible ral (F) 250 0% x 350 350 page 3 381 m	70 90 100 100 100 8 load [kN K, Fy) 350°C Fz Fz 267 267 3	315 330 330 370 100 - 120 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810 810	684 952 1401 1516 A 450 670 780 780	794 1037 1352 1587 B 560 640 900 900	516 567 660 756 C 710 735 805 805	690 793 928 1129 H 200 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822 770 kg 386 386
16 T4 63 / 48 T4 63R 16 T4 64 / 48 T4 64R 16 T4 65 / 48 T4 65R 16 T4 66 / 48 T4 66R Type 9 T4 64 9 T4 65 HL 9 T4 65 GS • 9 T4 65 FP • Dimension for Lift of Trunnion design:	down 100 302 1055 1055 1055 f restrair trunnior permiss 100 302 302	100 155 230 345 450 wards 250 219 700 700 700 700 nts / wn hole sible lo 250 219 219	80 125 180 270 360 350°C 178 534 534 534 eld sizes diamete	51 61 61 71 81 perm late 100 30 527 527 s see p	383 383 383 383 issible ral (F) 250 0% x 350 350 page 3 381 m	70 90 100 100 100 8 load [kN K, Fy) 350°C Fz Fz 267 267 3	315 330 330 370 100 - 120 120	1252 1252 1252 1252 1252 wards (-l 250 - - 108	1800 1800 1800 1800 1800 Fz) 350°C - - 95	2400 2400 2400 2400 2400 E 810 810 810 810	684 952 1401 1516 A 450 670 780 780 780	794 1037 1352 1587 B 560 640 900 900	516 567 660 756 C 710 735 805 805	690 793 928 1129 H 200 200 200 200 200	7-10 8-10 9-30 10-4 kg 293 473 822



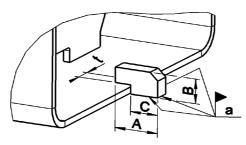
**Document No.: 900081-4** 

Page 33 / 36

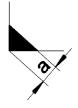
Rev.: 4

# Lift off restraints for Type 49 .. 64

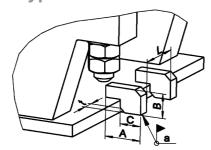
The permissible short time liftoff load of the clamp bases is 10% of the permissible loads given in the catalogue



							weight
Type	for clamp base	Α	В	С	t	а	pair [kg]
49 00 51	49 R0 64 to 49 08 64	35	15	23	8	3	0.1
49 00 52	49 09 64 to 49 33 64	55	32	35	12	4	0.3
49 00 53	49 35 64 to 49 63 64	80	45	55	15	5	0.7
49 00 54	49 72 64 to 49 87 64	110	50	80	20	7	1.5
49 00 55	49 T0 64 to 49 T4 64	115	50	85	25	8	2.0

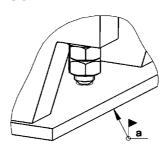


# Included lift off restraints of Type 49 .. 65 GS



For Type	Α	В	С	L	t	а
49 R6 65 GS	50	25	38	-	20	5
49 R7 65 GS	50	25	38	-	20	5
49 R8 65 GS	50	25	38	-	20	5
49 R9 65 GS	50	25	38	-	20	5
49 08 65 GS	50	25	38	-	20	5
49 09 65 GS	50	25	38	-	20	5
49 10 65 GS	50	25	38	-	20	5
49 13 65 GS	50	25	38	-	20	5
49 16 65 GS	70	32	55	-	30	6
49 22 65 GS	85	42	70	-	30	6
49 24 65 GS	85	45	70	-	30	6
49 27 65 GS	85	42	70	-	40	6
49 33 65 GS	100	47	85	-	40	7.5
49 35 65 GS	125	49	110	-	50	7.5
49 38 65 GS	125	49	110	-	50	7.5
49 43 65 GS	125	52	110	30	30	8
49 47 65 GS	140	62	120	30	30	8
49 53 65 GS	150	52	130	70	40	9
49 63 65 GS	180	52	130	75	45	9
49 72 65 GS	160	72	140	70	70	12
49 82 65 GS	160	52	140	70	70	12
49 87 65 GS	180	52	160	80	80	16
49 T0 65 GS	200	67	180	100	100	16
49 T4 65 GS	200	72	180	120	120	18

# Weld sizes for Type 49 .. 65 FP



For Time		
For Type	a	
49 R6 65 FP	3	
49 R7 65 FP	3	
49 R8 65 FP	3	
49 R9 65 FP	3	
49 08 65 FP	3	
49 09 65 FP	3	
49 10 65 FP	3	
49 13 65 FP	4	
49 16 65 FP	4	
49 22 65 FP	4	
49 24 65 FP	4	
49 27 65 FP	5	
49 33 65 FP	5	
49 35 65 FP	5	
49 38 65 FP	5	
49 43 65 FP	7	
49 47 65 FP	7	
49 53 65 FP	8	
49 63 65 FP	8	
49 72 65 FP	10	
49 82 65 FP	10	
49 87 65 FP	12	
49 T0 65 FP	14	
49 T4 65 FP	14	

Weld sizes [a] based on a stress of 75 N/mm² at normal operating condition load

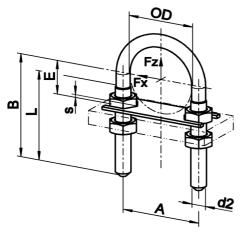


Document No.: 900081-4

Page 34 / 36

Rev.: 4

# U-Bolts Type 40



Type 40 R0 .8 to 40 82 .8

For concurrent load use the following interaction equation:

$$\frac{f_z}{F_Z} + \frac{f_x}{F_X} \le 1$$

Where fz and fx = applied loads Fz and Fx = maximum allowable loads from table below

Type         OD         A         B         d2 x L         E         s         Fx         Fz         Fx         Fz         kg							thickness of	max. lo	ads [kN]	max. lo	ads [kN]	
Type OD A B d2xL E s Fx Fz Fx Fz (kg)  40 R0.8 10 15 55 M4 x 50 8 3 0.19 2.18 0.13 1.51 0.02  40 R1.8 14 19 55 M4 x 50 9 2 0.16 2.18 0.11 1.51 0.02  40 R2.8 16 22 65 M5 x 60 10 2 0.31 3.57 0.22 2.49 0.03  40 R3.8 18 24 65 M5 x 60 11 2 0.28 3.57 0.20 2.49 0.03  40 R4.8 25 32 70 M6 x 65 15 2 0.35 5.03 0.24 3.51 0.05  40 R5.8 28 35 70 M6 x 65 14 - 0.40 5.03 0.28 3.51 0.05  40 R6.8 32 39 70 M6 x 65 16 - 0.32 5.03 0.22 3.51 0.05  40 R7.8 38 49 75 M10 x 65 22 3 1.10 14.70 0.82 10.27 0.15  40 R8.8 45 56 75 M10 x 65 25 2 1.03 14.70 0.72 10.27 0.16  40 R9.8 57 68 85 M10 x 70 29 - 0.88 14.70 0.62 10.27 0.18  40 09.8 89 (88.9) 103 100 M12 x 75 38 - 1.19 21.40 0.83 14.90 0.30  40 09.8 89 (88.9) 103 100 M12 x 75 54 - 21.40 - 14.90 0.32  40 10.8 108 123 115 M12 x 75 54 - 21.40 - 14.90 0.32  40 10.8 159 177 155 M16 x 95 80 - 21.40 - 14.90 0.36  40 22.8 220 (219.1) 238 180 M16 x 95 110 - 40.50 - 28.30 0.89  40 24.8 244.5 263 200 M16 x 95 122 - 40.50 - 28.30 1.08  40 27.8 273 295 215 M20 x 110 189 - 63.50 - 44.20 2.56  40 33.8 325 349 245 M20 x 110 189 - 63.50 - 44.20 2.56												weight
40 R0 .8       10       15       55       M4 x 50       8       3       0.19       2.18       0.13       1.51       0.02         40 R1 .8       14       19       55       M4 x 50       9       2       0.16       2.18       0.11       1.51       0.02         40 R2 .8       16       22       65       M5 x 60       10       2       0.31       3.57       0.22       2.49       0.03         40 R3 .8       18       24       65       M5 x 60       11       2       0.28       3.57       0.20       2.49       0.03         40 R4 .8       25       32       70       M6 x 65       15       2       0.35       5.03       0.24       3.51       0.05         40 R5 .8       28       35       70       M6 x 65       14       -       0.40       5.03       0.22       3.51       0.05         40 R6 .8       32       39       70       M6 x 65       16       -       0.32       5.03       0.22       3.51       0.05         40 R7 .8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15	Type	OD	Α	В	d2 x L	Е						
40 R2 .8       16       22       65       M5 x 60       10       2       0.31       3.57       0.22       2.49       0.03         40 R3 .8       18       24       65       M5 x 60       11       2       0.28       3.57       0.20       2.49       0.03         40 R4 .8       25       32       70       M6 x 65       15       2       0.35       5.03       0.24       3.51       0.05         40 R5 .8       28       35       70       M6 x 65       14       -       0.40       5.03       0.28       3.51       0.05         40 R6 .8       32       39       70       M6 x 65       16       -       0.32       5.03       0.22       3.51       0.05         40 R7 .8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15         40 R8 .8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18<		10	15	55	M4 x 50	8	3	0.19	2.18	0.13	1.51	
40 R3 .8       18       24       65       M5 x 60       11       2       0.28       3.57       0.20       2.49       0.03         40 R4 .8       25       32       70       M6 x 65       15       2       0.35       5.03       0.24       3.51       0.05         40 R5 .8       28       35       70       M6 x 65       14       -       0.40       5.03       0.28       3.51       0.05         40 R6 .8       32       39       70       M6 x 65       16       -       0.32       5.03       0.22       3.51       0.05         40 R7 .8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15         40 R8 .8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 90 .8       89 (88.9)       103       100       M12 x 75       38       -       1.19       21.40       0.83       14.90	40 R1 .8	14	19	55	M4 x 50	9	2	0.16	2.18	0.11	1.51	0.02
40 R4.8       25       32       70       M6 x 65       15       2       0.35       5.03       0.24       3.51       0.05         40 R5.8       28       35       70       M6 x 65       14       -       0.40       5.03       0.28       3.51       0.05         40 R6.8       32       39       70       M6 x 65       16       -       0.32       5.03       0.22       3.51       0.05         40 R7.8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15         40 R8.8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9.8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 R9.8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 R9.8       89 (88.9)       103       100       M12 x 75       38       -       1.19       21.40       0.83       14.90	40 R2 .8	16	22	65	M5 x 60	10	2	0.31	3.57	0.22	2.49	0.03
40 R5 .8       28       35       70       M6 x 65       14       -       0.40       5.03       0.28       3.51       0.05         40 R6 .8       32       39       70       M6 x 65       16       -       0.32       5.03       0.22       3.51       0.05         40 R7 .8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15         40 R8 .8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 08 .8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       67       -       -       21.40       -       14.90	40 R3 .8	18	24	65	M5 x 60	11	2	0.28	3.57	0.20	2.49	0.03
40 R6 .8       32       39       70       M6 x 65       16       -       0.32       5.03       0.22       3.51       0.05         40 R7 .8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15         40 R8 .8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 08 .8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90	40 R4 .8	25	32	70	M6 x 65	15	2	0.35	5.03	0.24	3.51	0.05
40 R7 .8       38       49       75       M10 x 65       22       3       1.10       14.70       0.82       10.27       0.15         40 R8 .8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 08 .8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.40         40 16 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30	40 R5 .8	28	35	70	M6 x 65	14	-	0.40	5.03	0.28	3.51	0.05
40 R8 .8       45       56       75       M10 x 65       25       2       1.03       14.70       0.72       10.27       0.16         40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 08 .8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.36         40 13 .8       159       177       155       M16 x 95       80       -       -       21.40       -       14.90       0.40         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.3	40 R6 .8		39	70	M6 x 65			0.32	5.03	0.22	3.51	0.05
40 R9 .8       57       68       85       M10 x 70       29       -       0.88       14.70       0.62       10.27       0.18         40 08 .8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.36         40 13 .8       159       177       155       M16 x 95       80       -       -       21.40       -       14.90       0.40         40 22 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30       0.89         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30 </td <td>40 R7 .8</td> <td>38</td> <td>49</td> <td>75</td> <td>M10 x 65</td> <td>22</td> <td>3</td> <td>1.10</td> <td>14.70</td> <td>0.82</td> <td>10.27</td> <td>0.15</td>	40 R7 .8	38	49	75	M10 x 65	22	3	1.10	14.70	0.82	10.27	0.15
40 08 .8       76 (76.1)       89       95       M12 x 75       38       -       1.19       21.40       0.83       14.90       0.30         40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.40         40 16 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30       0.89         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30       1.08         40 24 .8       244.5       263       200       M16 x 95       122       -       -       40.50       -       28.30       1.28         40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20	40 R8 .8		56	75	M10 x 65		2	1.03	14.70	0.72	10.27	0.16
40 09 .8       89 (88.9)       103       100       M12 x 75       44       -       -       21.40       -       14.90       0.32         40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.40         40 16 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30       0.89         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30       1.08         40 24 .8       244.5       263       200       M16 x 95       122       -       -       40.50       -       28.30       1.28         40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20       2.56         40 38 .8       377       401       270       M20 x 110       189       -       -       63.50       -       44.20							-			0.62	-	
40 10 .8       108       123       115       M12 x 75       54       -       -       21.40       -       14.90       0.36         40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.40         40 16 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30       0.89         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30       1.08         40 24 .8       244.5       263       200       M16 x 95       122       -       -       40.50       -       28.30       1.28         40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20       2.07         40 33 .8       325       349       245       M20 x 110       189       -       -       63.50       -       44.20       2.65         40 38 .8       377       401       270       M20 x 110       189       -       -       63.50       -       44.20		, ,					-	1.19		0.83		
40 13 .8       133       147       130       M12 x 75       67       -       -       21.40       -       14.90       0.40         40 16 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30       0.89         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30       1.08         40 24 .8       244.5       263       200       M16 x 95       122       -       -       40.50       -       28.30       1.28         40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20       2.07         40 33 .8       325       349       245       M20 x 110       163       -       -       63.50       -       44.20       2.56         40 38 .8       377       401       270       M20 x 110       189       -       -       63.50       -       44.20       2.65		` ,					-	-	21.40	-		
40 16 .8       159       177       155       M16 x 95       80       -       -       40.50       -       28.30       0.89         40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30       1.08         40 24 .8       244.5       263       200       M16 x 95       122       -       -       40.50       -       28.30       1.28         40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20       2.07         40 33 .8       325       349       245       M20 x 110       163       -       -       63.50       -       44.20       2.56         40 38 .8       377       401       270       M20 x 110       189       -       -       63.50       -       44.20       2.65							-	-		-		
40 22 .8       220 (219.1)       238       180       M16 x 95       110       -       -       40.50       -       28.30       1.08         40 24 .8       244.5       263       200       M16 x 95       122       -       -       40.50       -       28.30       1.28         40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20       2.07         40 33 .8       325       349       245       M20 x 110       163       -       -       63.50       -       44.20       2.56         40 38 .8       377       401       270       M20 x 110       189       -       -       63.50       -       44.20       2.65							-	-		-		
40 24 .8     244.5     263     200     M16 x 95     122     -     -     40.50     -     28.30     1.28       40 27 .8     273     295     215     M20 x 110     137     -     -     63.50     -     44.20     2.07       40 33 .8     325     349     245     M20 x 110     163     -     -     63.50     -     44.20     2.56       40 38 .8     377     401     270     M20 x 110     189     -     -     63.50     -     44.20     2.65							-	-		-		
40 27 .8       273       295       215       M20 x 110       137       -       -       63.50       -       44.20       2.07         40 33 .8       325       349       245       M20 x 110       163       -       -       63.50       -       44.20       2.56         40 38 .8       377       401       270       M20 x 110       189       -       -       63.50       -       44.20       2.65		, ,					-	-		-		
40 33 .8 325 349 245 M20 x 110 163 63.50 - 44.20 2.56 40 38 .8 377 401 270 M20 x 110 189 63.50 - 44.20 2.65							-	-		-		
40 38 .8 377 401 270 M20 x 110 189 63.50 - 44.20 2.65							-	-		-		
							-	-		-		
							-	-		-		
	40 43 .8	426	451	290	M20 x 110	213	-	-	63.50	-	44.20	2.92
40 47 .8 465 494 320 M24 x 125 233 91.40 - 63.60 4.65							-	-		-		
40 53 .8 530 560 350 M24 x 125 265 91.40 - 63.60 5.0							-	-		-		
40 63 .8 630 661 400 M24 x 125 315 91.40 - 63.60 5.9							-	-		-		
40 72 .8 720 752 455 M24 x 125 360 91.40 - 63.60 6.7							-	-		-		_
40 82 .8 820 853 500 M24 x 125 410 - 91.40 - 63.60 7.4	40 82 .8	820	853	500	M24 x 125	410	-	-	91.40	-	63.60	7.4

➤ 5. digit 6 = carbon steel S235JR 8 = stainless steel 1.4301

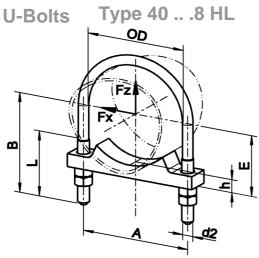
• Factor for load reduction at Temperature 250°C: 0.7 350°C: 0.5



Document No.: 900081-4

Page 35 / 36

Rev.: 4



Type 40 R0 .8HL to 40 22 .8HL

For concurrent load use the following interaction equation:

$$\frac{f_z}{F_Z} + \frac{f_x}{F_X} \le 1$$

Where fz and fx = applied loads Fz and Fx = maximum allowable loads from table below

							max. loa	ads [kN]	max. loa	ads [kN]	
							S235	JR•	1.43	01•	weight
Type	OD	Α	В	d2 x L	Е	h	Fx	Fz	Fx	Fz	(kg)
40 R0 .8 HL	10	15	55	M4 x 50	13	8	1.00	2.18	0.75	1.51	0.03
40 R1 .8 HL	14	19	55	M4 x 50	15	8	1.00	2.18	0.75	1.51	0.03
40 R2 .8 HL	16	22	65	M5 x 60	18	10	1.75	3.57	1.25	2.49	0.03
40 R3 .8 HL	18	24	65	M5 x 60	19	10	1.75	3.57	1.25	2.49	0.03
40 R4 .8 HL	25	32	70	M6 x 65	25	12	2.50	5.03	1.75	3.51	0.05
40 R5 .8 HL	28	35	70	M6 x 65	26	12	2.50	5.03	1.75	3.51	0.05
40 R6 .8 HL	32	39	70	M6 x 65	28	12	2.50	5.03	1.75	3.51	0.11
40 R7 .8 HL	38	49	75	M10 x 65	34	15	7.40	14.70	5.10	10.27	0.34
40 R8 .8 HL	45	56	75	M10 x 65	38	15	7.40	14.70	5.10	10.27	0.37
40 R9 .8 HL	57	68	85	M10 x 70	44	15	7.40	14.70	5.10	10.27	0.44
40 08 .8 HL	76 (76.1)	89	95	M12 x 75	53	15	10.50	21.40	7.50	14.90	0.75
40 09 .8 HL	89 (88.9)	103	100	M12 x 75	60	15	10.50	21.40	7.50	14.90	0.86
40 10 .8 HL	108	123	115	M12 x 75	69	15	10.50	21.40	7.50	14.90	0.88
40 13 .8 HL	133	147	130	M12 x 75	82	15	10.50	21.40	7.50	14.90	1.05
40 16 .8 HL	159	177	155	M16 x 95	95	15	20.00	40.50	14.00	28.30	1.89
40 22 .8 HL	220 (219.1)	238	180	M16 x 95	125	15	20.00	40.50	14.00	28.30	2.57

→ 5. digit 6 = carbon steel S235JR 8 = stainless steel 1.4301

• Factor for load reduction at Temperature 250°C: 0.7 350°C: 0.5



Design	Document No.: 900081-4	Page 36 / 36
Development		Rev.: 4

# Special application of double clamp bases up to DA 377

_	permis		ad [kN]
Туре		Fz	
	100	250	350°C
49 R0 64 G2P	0.23	0.17	0.12
49 R1 64 G2P	0.25	0.19	0.13
49 R2 64 G2P	0.26	0.19	0.14
49 R3 64 G2P	0.27	0.20	0.14
49 R4 64 G2P	0.95	0.71	0.50
49 R5 64 G2P	0.95	0.71	0.50
49 R6 64 G2P	1.00	0.77	0.55
49 R7 64 G2P	1.00	0.78	0.56
49 R8 64 G2P	1.00	0.81	0.58
49 R9 64 G2P	2.00	1.50	1.00
49 08 64 G2P	2.40	1.80	1.20
49 09 64 G2P	2.50	1.85	1.30
49 10 64 G2P	3.60	2.70	1.90
49 13 64 G2P	3.90	2.90	2.00
49 16 64 G2P	4.10	3.00	2.20
49 22 64 G2P	4.70	3.50	2.50
49 24 64 G2P	4.70	3.50	2.50
49 27 64 G2P	4.80	3.50	2.50
49 33 64 G2P	4.80	3.50	2.50
49 35 64 G2P	4.80	3.50	2.50
49 38 64 G2P	5.20	3.80	2.70

