Standard Supports

2010 *RS*


LISEGA
performance with system

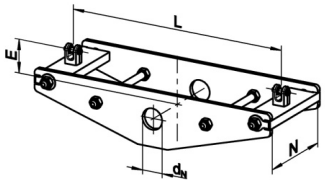
Addendum to
LISEGA catalogue „Standard Supports 2010"
in reference to
Russian standard pipe dimensions
- for nuclear application -

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

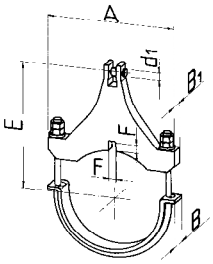
List of revision

Rev.	Description	Date / Name
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

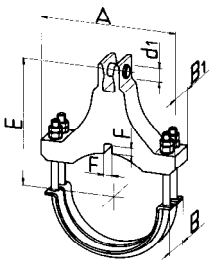
Dynamic pipe surrounding elements



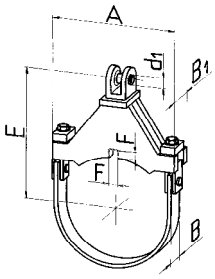
Type 34 .. ..R



Type 36 .. .1/2/3



Type 36 .. .4/5



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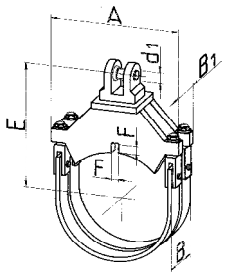
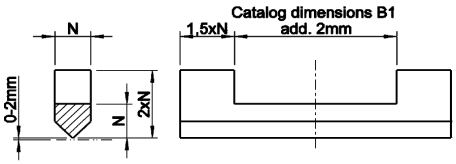
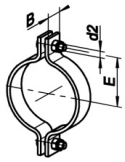


Type 37 .. .7/8/9

Lug dimensions for Type 36/37



Static pipe surrounding elements



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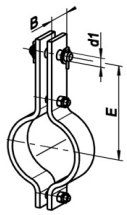

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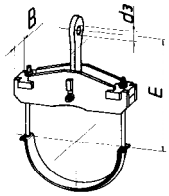
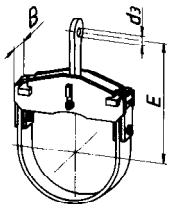


Type 44 .. .1/2/3



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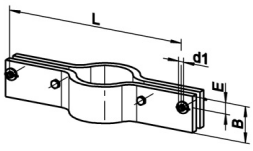

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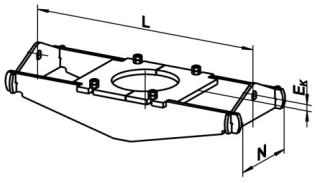

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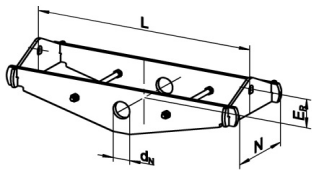
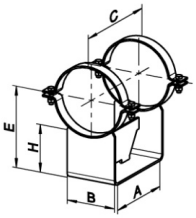


Type 48 .. ..

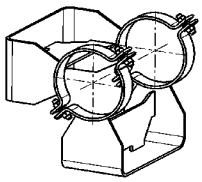
Static pipe surrounding elements

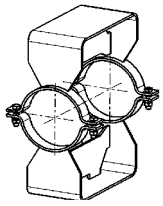
Special applications see page 35/35

Sliding supports



Type 49 .. .4


Type 49 .. .4 G2A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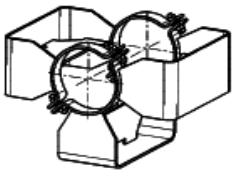
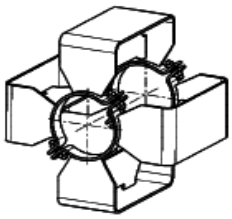
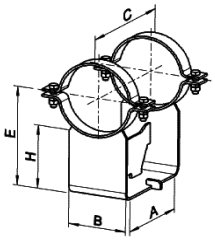
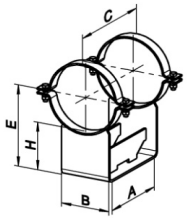

Type 49 .. .4 G3

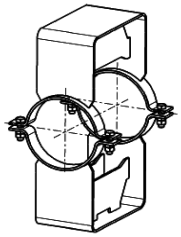

Type 49 .. .4 G4



Type 49 .. .4 with lift off restaints

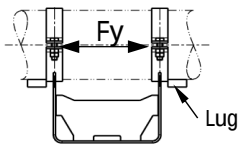


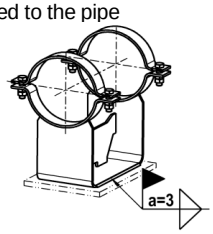
Type 49 .. .5 HL


Type 49 .. .5 HL G2P

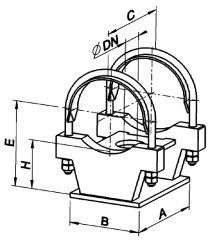
Fixed Points

To prevent movement of the pipe due to the axial load (Fy) lugs are to be welded to the pipe



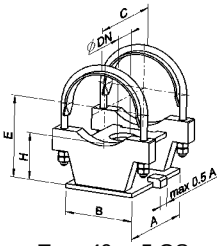


Type 49 .. .5 FP for diameter smaller 32 mm



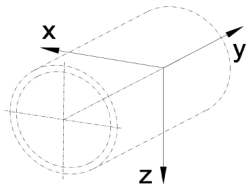
Type 49 .. .5 FP for diameter larger or equal 32 mm

Guided Supports



Type 49 .. .5 GS

Load directions



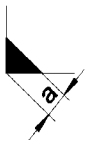


Table of load case ratios

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 condition	cyrillic abbreviation	Load ratio for Seismic Category 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+ПЗ	1.2	1.5	n/a
4	anticipated operational occurrences and operational basis earthquake	ННУЭ+ПЗ	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+ПЗ	1.4	n/a	n/a
8	Design basis accident and safety shutdown earthquake	УПА+ПЗ	1.5	n/a	n/a

Selection table OD 10

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R0 69	2.5	2.1	1.5	M8	20	25	0.1	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R0 69	2.5	2.4	1.7	12	90	25	0.2	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 R0 64	0.6	0.6	0.5	30% x Fz			-	-	-	105	135	70	175	100	0.8
49 R0 65 HL	2.2	1.8	1.5	50% x Fz			-	-	-	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 off restraints see page 33

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	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

• For special application see page 35/35

Selection table OD 14

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R1 69	2.5	2.1	1.5	M8	22	25	0.1	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R1 69	2.5	2.4	1.7	12	90	25	0.2	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-group
45 R1 61	3.3	2.7	1.8	12	25	50	250	1.5	C-4
45 R1 61	2.7	2.1	1.5	12	25	50	300	1.7	C-4
45 R1 61	2.0	1.6	1.1	12	25	50	400	2.2	C-4
45 R1 61	1.4	1.0	0.7	12	25	50	500	2.7	C-4

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 R1 64	0.6	0.6	0.5	30% x Fz			-	-	-	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 off restraints see page 33

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 R1 64 G2P •	0.60	0.6	0.50	107	135	70	180	100	1.6
49 R1 65 HL G2P	2.2	1.8	1.50	107	135	110	190	100	3.1

• For special application see page 35/35

Selection table OD 16

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R2 69	2.5	2.1	1.5	M8	24	25	0.1	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R2 69	2.5	2.4	1.7	12	90	25	0.2	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 R2 64	1.0	0.8	0.7	30% x Fz			-	-	-	108	135	70	180	100	1.0
49 R2 65 HL	2.4	2.2	2.1	50% x 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 off restraints see page 33

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	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 application see page 35/35

Selection table OD 18

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R3 69	2.5	2.1	1.5	M8	25	25	0.1	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R3 69	2.5	2.4	1.7	12	90	25	0.2	C-D

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 R3 64	1.0	0.8	0.7	30% x Fz			-	-	-	109	135	70	180	100	1.0
49 R3 65 HL	2.4	2.2	2.1	50% x Fz			-	-	-	109	135	110	190	100	1.8
49 R3 65 FP	2.4	2.2	2.1	2.4	1.9	1.4	0.9	0.6	0.48	109	135	110	190	100	2.3

Dimension for Lift off restraints see page 33

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 R3 64 G2P •	1.00	0.8	0.70	109	135	70	180	100	1.6
49 R3 65 HL G2P	2.4	2.2	2.10	109	135	110	190	100	3.1

• For special application see page 35/35

Selection table OD 25

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R4 69	5.5	4.0	3.0	M10	30	30	0.3	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R4 69	6.0	4.5	3.0	12	110	30	0.5	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-group
45 R4 61	4.6	3.7	2.6	12	25	50	250	1.9	C-4
45 R4 61	3.7	3.0	2.1	12	25	50	300	2.2	C-4
45 R4 61	2.7	2.2	1.6	12	25	50	400	2.9	C-4
45 R4 61	2.2	1.7	1.2	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

	permissible load [kN] downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 R4 64	1.0	0.8	0.7	30% x Fz			-	-	-	113	150	70	200	100	1.3
49 R4 65 HL	3.0	2.4	2.1	50% x 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 off restraints see page 33

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	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

• For special application see page 35/35

Selection table OD 28

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R5 69	5.5	4.0	3.0	M10	35	30	0.3	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R5 69	6.0	4.5	3.0	12	110	30	0.5	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

	permissible load [kN] downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 R5 64	1.0	0.8	0.7	30% x Fz			-	-	-	114	150	65	200	100	1.3
49 R5 65 HL	3.0	2.4	2.1	50% 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

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	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

Selection table OD 32

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	N	min	max	min	max	group
34 R6 62R	4.2	3.3	2.8	54	15	44	250	550	2.9	5.2	2

	permissible load [kN]										max •
Type	100	250	350°C	d1	E	A	B	B1	F *f*	kg	loadgr
36 R6 61	4.0	4.0	4.0	10	110	75	50	20	9	0.9	2

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

f Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 3)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 R6 69	5.5	4.0	3.0	M10	35	30	0.4	C-2

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
43 R6 69	6.0	4.5	3.0	12	120	30	0.6	C-2

	permissible load [kN]								load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 R6 64	1.1	0.9	0.8	30% x Fz			-	-	-	116	150	70	200	100	1.4
49 R6 65 HL	3.3	2.7	2.4	50% x Fz			-	-	-	116	150	110	230	100	3.4
49 R6 65 GS •	3.3	2.7	2.4	1.6	1.3	1.2	1.0	0.8	0.7	116	220	50	230	100	3.4
49 R6 65 FP •	3.3	2.7	2.4	1.6	1.3	1.2	1.0	0.8	0.7	116	220	50	230	100	3.0

Dimension for Lift off restraints see page 33

• Trunnion design: trunnion hole diameter d_N = 18

	permissible load [kN] in each foot direction									
Type	100	250	350°C	E	A	B	C	H	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 application see page 35/35

Selection table OD 38

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]										max •
Type	100	250	350°C	d1	E	A	B	B1	F *f*	kg	loadgr
36 R7 61	4.0	4.0	4.0	10	110	75	50	20	9	0.9	2

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

f Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 R7 69	5.5	4.0	3.0	M10	40	30	0.4	C-2

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
43 R7 69	6.0	4.5	3.0	12	130	30	0.7	C-2

	permissible load [kN]								load-
Type	100	250	350°C	d1	E	B	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	25	60	400	3.5	C-4
45 R7 61	2.6	2.2	1.5	12	25	60	500	4.2	C-4
45 R7 61	2.2	1.8	1.3	12	25	60	600	5.0	C-4

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 R7 64	1.1	0.9	0.8	30% x Fz			-	-	-	119	150	70	200	100	1.5
49 R7 65 HL	3.3	2.7	2.4	50% x Fz			-	-	-	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	0.8	0.7	119	220	50	230	100	3.4

Dimension for Lift off restraints see page 33

• Trunnion design: trunnion hole diameter d_N = 18

	permissible load [kN] in each foot direction									
Type	100	250	350°C	E	A	B	C	H	kg
49 R7 64 G2P ,	1.1	0.9	0.8	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 application see page 35/35

Selection table OD 45

	permissible load [kN]							L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]				,						max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
36 R8 61	8.0	8.0	8.0	12	130	85	50	20	9	1.2	3

• 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)

	permissible load [kN]								load-
Type	100	250	350°C	d2	E	B	kg		group
42 R8 69	5.5	4.0	3.0	M10	45	30	0.4		C-2

	permissible load [kN]								load-
Type	100	250	350°C	d1	E	B	kg		group
43 R8 69	6.0	4.5	3.0	12	140	30	0.7		C-4

	permissible load [kN]								load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]													
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 R8 64	1.2	1.0	0.9	30% x Fz			-	-	-	123	150	70	210	100	1.9
49 R8 65 HL	3.6	3.0	2.7	50% x Fz			-	-	-	123	150	110	230	100	3.4
49 R8 65 GS •	3.6	3.0	2.7	1.8	1.5	1.3	1.0	0.9	0.8	123	220	65	230	100	4.6
49 R8 65 FP •	3.6	3.0	2.7	1.8	1.5	1.3	1.0	0.9	0.8	123	220	65	230	100	4.2

Dimension for Lift off restraints see page 33

• Trunnion design: trunnion hole diameter d_N = 18

	permissible load [kN] in each foot direction									
Type	100	250	350°C	E	A	B	C	H	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 application see page 35/35

Selection table OD 57

Type	permissible load [kN] 100	250	350°C	E	$d_N^{+0,1}$	N	L min	L max	kg min	kg max	load group
34 R9 62R	5.5	4.0	2.9	54	22	69	350	600	3.5	5.7	2

Type	permissible load [kN] 100	250	350°C	d1 •	, Emax	A	B	B1	F ƒ	kg	max • loadgr
36 R9 61	14.0	13.0	12	15	150	110	50	25	9	1.9	4

• 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

ƒ Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 R9 69	7.5	5.5	4.0	M12	55	40	0.7	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 R9 69	7.5	5.5	4.0	12	150	40	1.1	C-4

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 R9 64	1.3	1.1	1.0	30% x Fz			-	-	-	129	150	75	220	100	2.6
49 R9 65 HL	3.9	3.3	3.0	50% x Fz			-	-	-	129	150	115	240	100	4.3
49 R9 65 GS •	3.9	3.3	3.0	2.0	1.7	1.5	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	1.5	1.2	1.0	0.9	129	230	50	240	100	5.5

Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 26

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 R9 64 G2A	1.3	1.1	1.0	129	150	75	220	100	3.8
49 R9 64 G2P ,	1.3	1.1	1.0	129	150	75	220	100	3.8
49 R9 64 G3	1.3	1.1	1.0	129	150	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 application see page 35/35

Selection table OD 76 (76.1)

Type	permissible load [kN] 100	250	350°C	E	$d_N^{+0,1}$	N	L min	L max	kg min	kg max	load group
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

Type	permissible load [kN] 100	250	350°C	d1 •	, Emax	A	B	B1	F ƒ	kg	max • loadgr
36 08 61	15	14	13	15	160	125	50	25	9	2.2	4

• 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

ƒ Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 08 69	7.5	5.5	4.0	M12	60	40	0.9	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 08 69	7.5	5.5	4.0	12	165	40	1.2	C-4

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-group
45 08 69			5.0	12	25	70	300	6.6	C-D
45 08 61	17	13	9.2	16	30	70	300	6.6	1-4
45 08 62	27	23	16	16	30	100	300	9.3	1-4
45 08 69			5.0	12	25	70	400	8.2	C-D
45 08 61	14	10	7.5	16	30	70	400	8.2	1-4
45 08 62	22	16	11	16	30	100	400	11.6	1-4
45 08 69			5.0	12	25	70	500	9.9	C-D
45 08 61	11	8.3	6.0	16	30	70	500	9.9	1-4
45 08 62	17	12	9.1	16	30	100	500	14.0	1-4
45 08 69		5.0	4.7	12	25	70	600	11.5	C-D
45 08 61	9.0	6.6	4.7	16	30	70	600	11.5	1-4
45 08 62	13	10	7.3	16	30	100	600	16.3	1-4

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 08 64	1.4	1.2	1.1	30% x Fz			-	-	-	138	200	80	270	100	3.3
49 08 65 HL	4.1	3.5	3.3	50% x Fz			-	-	-	138	200	115	290	100	5.1
49 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	7.6
49 08 65 FP •	4.1	3.5	3.3	2.1	1.8	1.7	1.2	1.1	1.0	138	280	90	290	100	7.2

Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 33 mm

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 08 64 G2A	1.4	1.2	1.1	138	200	80	270	100	4.8
49 08 64 G2P ,	1.4	1.2	1.1	138	200	80	270	100	4.8
49 08 64 G3	1.4	1.2	1.1	138	200	80	270	100	6.3
49 08 64 G4	1.4	1.2	1.1	138	200	80	270	100	7.8
49 08 65 HL G2P	4.1	3.5	3.3	138	200	115	290	100	8.4

, For special application see page 35/35

Selection table OD 89 (88.9)

Type	permissible load [kN] 100	250	350°C	E	$d_N^{+0,1}$	N	L min	L max	kg min	kg max	load 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

Type	permissible load [kN] 100	250	350°C	d1 •	E‚ max	A	B	B1	F ƒ	kg	max • loadgr
36 09 61	23	20	19	20	185	146	50	30	11	3.8	5

• 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

ƒ Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 09 69	6.5	4.5	3.5	M12	70	40	1.0	C-2

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-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

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 09 64	2.6	2.2	2.1	30% x Fz			-	-	-	144	200	85	280	100	4.0
49 09 65 HL	7.8	6.6	6.3	50% x Fz			-	-	-	144	200	115	320	100	7.1
49 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
49 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

Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 33 mm

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 09 64 G2A	2.6	2.2	2.1	144	200	85	280	100	6.0
49 09 64 G2P ‚	2.6	2.2	2.1	144	200	85	280	100	6.0
49 09 64 G3	2.6	2.2	2.1	144	200	85	280	100	8.0
49 09 64 G4	2.6	2.2	2.1	144	200	85	280	100	10.0
49 09 65 HL G2P	7.8	6.6	6.3	144	200	115	320	100	12.3

‚ For special application see page 35/35

Selection table OD 108

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F ƒ	kg	loadgr
36 10 61	32	29	24	20	205	165	50	35	11	4.9	5

• 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

ƒ Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 10 69	10	7.6	6.0	M16	90	50	2.0	1-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
43 10 69	10	7.6	6.0	16	200	50	2.5	1-4

	permissible load [kN]								load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]							L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	E_R	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

	permissible load [kN]													
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 10 64	3.0	2.7	2.5	30% x Fz			-	-	-	204	200	125	290	150	8.0
49 10 65 HL	9.0	8.1	7.5	50% 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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 46 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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 see page 35/35

Selection table OD 133

Type	permissible load [kN] 100	250	350°C	E	$d_N^{+0,1}$	N	L min	L max	kg min	kg max	load 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

Type	permissible load [kN] 100	250	350°C	d1 •	, Emax	A	B	B1	F ƒ	kg	max • loadgr
36 13 61	31	28	23	20	225	190	50	35	11	5.8	5

• 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

ƒ Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 13 69	10	7.6	5.6	M16	100	50	2.2	1-4

Type	permissible load [kN] 100	250	350°C	d1	E	B	kg	load-group
43 13 69	10	7.6	6.0	16	220	50	2.8	1-4

Type	permissible load [kN] 100	250	350°C	d1	E	B	L	kg	load-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

Type	permissible load [kN] 100	250	350°C	d3	d_N	E_K	E_R	N	L min	L max	kg / Type 46 min	kg / Type 46 max	kg / Type 48 min	kg / Type 48 max	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 13 64	3.2	2.7	2.6	30% x Fz			-	-	-	217	200	130	290	150	8.6
49 13 65 HL	9.6	8.1	7.8	50% x Fz			-	-	-	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 restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 46 mm

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	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 application see page 35/35

Selection table OD 159

	permissible load [kN]							L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
36 16 61	30	27	24	20	245	220	50	35	11	6.7	5

• 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 16 69	9.0	6.6	4.8	M16	115	50	2.5	1-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
43 16 69	10	7.5	5.4	16	245	50	3.1	1-4

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 16 64	4.4	3.7	3.5	30% x Fz			-	-	-	230	250	140	340	150	9.8
49 16 65 HL	12	11	10	50% x Fz			-	-	-	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 58 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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
49 16 64 G4	4.4	3.7	3.5	230	250	140	340	150	24
49 16 65 HL G2P	12	11	10	230	250	185	350	150	32

, For special application see page 35/35

Selection table OD 220 (219.1)

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	N	min	max	min	max	group
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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 22 69	7.0	5.2	3.7	M16	145	50	3.1	1-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
43 22 69	12	9.1	6.5	16	295	50	5.0	1-5

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	kg	group
44 22 62	29	23	18	34	275	75	9	3-6

	permissible load [kN]								L		kg / Type 46		kg / Type 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 46; 8 = type 48

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	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 restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 77 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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 application see page 35/35

Selection table OD 244.5

	permissible load [kN]						L		kg		load
Type	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 24 69	6.3	4.7	3.4	M16	160	50	3.3	1-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
43 24 69	12	11	8.4	16	310	50	6.1	1-5

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 77 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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 application see page 35/35

Selection table OD 273

	permissible load [kN]							L		kg		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	85	295	550	1150	23	38	3
34 27 64R	36	27	19	122	85	295	550	1150	36	59	4
34 27 65R	92	61	48	134	85	295	550	1150	55	87	5

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
36 27 61	48	44	38	30	345	350	50	45	11	17	6
36 27 62	65	57	47	30	345	355	50	45	13	19	6
36 27 64	110	100	81	50	360	345	100	80	13	34	7
36 27 65	166	150	120	50	360	355	100	90	16	42	7

• 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 27 69	6.4	4.7	3.4	M20	180	60	4.7	3-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 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 46; 8 = type 48

	permissible load [kN]													
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 27 64	16	14	13	30% x Fz			-	-	-	287	260	170	395	150	21
49 27 65 HL	48	42	39	50% 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_N = 90 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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

, For special application see page 35/35

Selection table OD 325

	permissible load [kN]							L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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	48	139	104	347	600	1200	65	99	5
34 33 66R	200	130	105	182	104	347	600	1200	108	162	6

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 33 69	5.1	3.9	2.8	M20	205	60	4.7	3-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 33 64	20	17	16	30% x Fz			-	-	-	363	260	225	400	200	28
49 33 65 HL	60	51	48	50% x Fz			-	-	-	363	260	250	430	200	42
49 33 65 GS •	60	51	48	30	26	24	18	15	14	363	430	250	430	200	83
49 33 65 FP •	60	51	48	30	26	24	18	15	14	363	430	250	430	200	80

Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 109 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	kg
49 33 64 G2A	20	17	16	363	260	225	400	200	46
49 33 64 G2P ,	20	17	16	363	260	225	400	200	46
49 33 64 G3	20	17	16	363	260	225	400	200	64
49 33 64 G4	20	17	16	363	260	225	400	200	81
49 33 65 HL G2P	60	51	48	363	260	250	430	200	73

, For special application see page 35/35

Selection table OD 351

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F ƒ	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 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

ƒ Lug dimensions: F less 1 mm; B1 plus 2 mm (see page 4)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 35 69	5.3	3.9	2.8	M20	220	60	5.7	3-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		Type 46 kg		Type 48 kg		load-
Type	100	250	350°C	d3	d_N	E_K	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

	permissible load [kN]													
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 35 64	26	22	21	30% x Fz			-	-	-	376	300	235	460	200	34.7
49 35 65 HL	78	66	63	50% x Fz			-	-	-	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 135 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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 application see page 35/35

Selection table OD 377

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	N	min	max	min	max	group
34 38 64R	36	27	19	129	129	400	700	1300	57	86	4
34 38 65R	92	60	48	147	129	400	700	1300	83	121	5
34 38 66R	200	130	105	190	129	400	700	1300	136	196	6

	permissible load [kN]				,						max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
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 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 38 69	5.1	3.9	2.8	M20	230	60	5.8	3-4

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	kg	group
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

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	kg	group
44 38 62	44	38	27	46	405	75	21	6-8
44 38 63	70	60	53	51	425	115	32	6-9

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	E_R	N	min	max	min	max	min	max	group
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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 38 64	27	23	22	30% x Fz			-	-	-	389	300	240	460	200	36
49 38 65 HL	81	69	66	50% x Fz			-	-	-	389	300	250	470	200	49
49 38 65 GS •	81	69	66	41	35	33	24	21	20	389	470	300	470	200	105
49 38 65 FP •	81	69	66	41	35	33	24	21	20	389	470	300	470	200	100

Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 135 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	kg
49 38 64 G2A	27	23	22	389	300	240	460	200	60.6
49 38 64 G2P ,	27	23	22	389	300	240	460	200	60.6
49 38 64 G3	27	23	22	389	300	240	460	200	85.1
49 38 64 G4	27	23	22	389	300	240	460	200	110
49 38 65 HL G2P	81	69	66	389	300	250	470	200	85.3

, For special application see page 35/35

Selection table OD 426

	permissible load [kN]							L		kg		load
Type	100	250	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
36 43 61	37	35	34	20	450	500	60	40	11	24	5
36 43 62	65	57	45	30	450	510	60	45	13	30	6
36 43 63	100	100	84	30	450	525	60	60	13	44	6
36 43 64	162	148	135	50	465	510	120	90	16	63	7
36 43 65	272	250	218	60	490	525	120	120	21	103	8

• 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 43 69	7.7	5.8	4.1	M24	265	70	8.9	3-5

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 43 64	48	38	35	30% x Fz			-	-	-	413	300	240	480	200	47
49 43 65 HL	144	114	105	50% x Fz			-	-	-	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 135 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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

Selection table OD 465

	permissible load [kN]						L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]				,						max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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

• 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 47 69	7.2	5.4	3.8	M24	285	70	9.6	3-5

	permissible load [kN]							load-
Type	100	250	350°C	d1	E	B	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

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 47 64	67	51	37	30% x Fz			-	-	-	433	350	260	500	200	49
49 47 65 HL	153	153	111	50% x Fz			-	-	-	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 161 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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

Selection table OD 530

	permissible load [kN]							L		kg		load
Type	100	250	350°C	E	$d_N^{+0,1}$	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
37 53 61	75	57	41	30	525	615	155	130	13	46	6
37 53 62	126	100	73	50	540	640	170	135	13	70	7
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	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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 53 69	18	13	9.9	M30	335	90	21	5-6

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 53 64	82	62	45	30% x Fz			-	-	-	465	350	280	520	200	73
49 53 65 HL	246	186	135	50% x Fz			-	-	-	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 161 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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

Selection table OD 630

	permissible load [kN]						L		kg		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

	permissible load [kN]				,						max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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 64	270	197	150	70	670	775	290	260	16	204	9
37 63 67	359	272	196	70	670	710	310	230	21	247	9
37 63 68	529	399	288	70	670	725	330	250	21	312	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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 63 69	16	12	8.8	M30	385	90	25	5-6

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 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

	permissible load [kN]													
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)							
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 222 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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

Selection table OD 720

	permissible load [kN]							L		kg		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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 72 69	14	10	7.7	M30	430	90	28	5-6

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	kg	group
44 72 64	43	36	30	41	635	105	59	4-7
44 72 65	95	75	60	51	635	120	73	6-9
44 72 66	124	88	72	61	635	130	83	7-10
44 72 67	150	120	88	71	635	165	99	8-30
44 72 68	177	145	115	71	635	195	125	8-30
44 72 69	307	225	172	71	655	225	201	9-30

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	E_R	N	min	max	min	max	min	max	group
4. • 72 61	74	57	42	41	224	45	195	752	1100	1700	144	193	122	187	5-7
4. 72 62	118	90	70	46	224	55	240	752	1100	1700	191	247	144	226	6-8
4. 72 63	180	133	105	51	224	60	225	752	1100	1700	238	316	158	263	7-9
4. 72 64	236	175	142	51	224	80	230	752	1100	1700	314	375	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 46; 8 = type 48

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 222 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	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

Selection table OD 820

Type	permissible load [kN] 100	250	350°C	E	$d_N^{+0,2}$	N	L min	L max	kg min	kg max	load 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

Type	permissible load [kN] 100	250	350°C	d1 •	, Emax	A	B	B1	F *f*	kg	max • 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	400	300	233	70	790	990	295	260	21	300	9
37 82 68	529	400	288	70	790	915	330	250	21	374	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)

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 82 69	14	10	7.4	M30	485	90	31	5-6

Type	permissible load [kN] 100	250	350°C	d3	E	B	kg	load-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

Type	permissible load [kN] 100	250	350°C	d3	d_N	E_K	E_R	N	L min	L max	kg / Type 46 min	kg / Type 46 max	kg / Type 48 min	kg / Type 48 max	load-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

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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	kg
49 82 64	150	117	86	30% x Fz			-	-	-	610	400	400	590	200	121
49 82 65 HL	480	320	258	50% 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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 276 mm

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 82 64 G2A	150	117	86	610	400	400	590	200	180
49 82 64 G2P	150	117	86	610	400	400	590	200	180
49 82 64 G3	150	117	86	610	400	400	590	200	239
49 82 64 G4	150	117	86	610	400	400	590	200	298
49 82 65 HL G2P	480	320	258	610	570	530	600	200	363

Selection table OD 870

	permissible load [kN]							L		kg		load
Type	100	250	350°C	E	$d_N^{+0,2}$	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

	permissible load [kN]				,					max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	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 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 87 69	14	10	7.4	M30	510	90	33	5-6

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	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

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	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

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

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 87 64	235	163	132	30% x Fz			-	-	-	635	450	420	650	200	141
49 87 65 HL	740	495	396	50% x Fz			-	-	-	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 FP •	740	495	396	370	247	198	90	70	50	635	585	750	625	200	431

Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 276 mm

	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	kg
49 87 64 G2A	235	163	132	635	450	420	650	200	216
49 87 64 G2P	235	163	132	635	450	420	650	200	216
49 87 64 G3	235	163	132	635	450	420	650	200	291
49 87 64 G4	235	163	132	635	450	420	650	200	366
49 87 65 HL G2P	740	495	396	635	600	640	625	200	492

Selection table OD 1020 (1016)

Type	permissible load [kN] 100	250	350°C	E	$d_N^{+0,2}$	N	L min	L max	kg min	kg max	load 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

Type	permissible load [kN] 100	250	350°C	d1 •	, Emax	A	B	B1	F *f*	kg	max • 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 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)

Type	permissible load [kN] 100	250	350°C	d2	E	B	kg	load-group
42 T0 69	27	21	14	M30	592	150	85	5-6

Type	permissible load [kN] 100	250	350°C	d3	E	B	kg	load-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

Type	permissible load [kN] 100	250	350°C	d3	d_N	E_K	E_R	N	L min	L max	kg / Type 46 min	kg / Type 46 max	kg / Type 48 min	kg / Type 48 max	load-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

Type	permissible load [kN] downwards (Fz) 100	250	350°C	lateral (Fx, Fy) 100	250	350°C	upwards (-Fz) 100	250	350°C	E	A	B	C	H	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 off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 328 mm

Type	permissible load [kN] in each foot direction 100	250	350°C	E	A	B	C	H	kg
49 T0 64 G2A	302	217	176	708	450	470	710	200	332
49 T0 64 G2P	302	217	176	708	450	470	710	200	332
49 T0 64 G3	302	217	176	708	450	470	710	200	413
49 T0 64 G4	302	217	176	708	450	470	710	200	494
49 T0 65 HL G2P	995	665	528	708	670	610	735	200	684

Selection table OD 1220 (1219)

	permissible load [kN]							L		kg		load
Type	100	250	350°C	E	$d_N^{+0,2}$	N	min	max	min	max	group
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

	permissible load [kN]				,						max •
Type	100	250	350°C	d1 •	Emax	A	B	B1	F *f*	kg	loadgr
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	100	60	955	1335	230	195	16	195	8
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 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)

	permissible load [kN]							load-
Type	100	250	350°C	d2	E	B	kg	group
42 T4 69	24	18	13	M30	694	150	100	5-6

	permissible load [kN]							load-
Type	100	250	350°C	d3	E	B	kg	group
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	10-40
44 T4 69	395	342	258	91	1030	265	424	20-50

	permissible load [kN]								L		kg / Type 46		kg / Type 48		load-
Type	100	250	350°C	d3	d_N	E_K	E_R	N	min	max	min	max	min	max	group
46 T4 61 / 48 T4 61R	96	71	57	46	383	50	295	1252	1800	2400	412	511	406	506	5-8
46 T4 62 / 48 T4 62R	135	100	80	51	383	60	300	1252	1800	2400	506	635	421	603	6-9
46 T4 63 / 48 T4 63R	215	155	125	61	383	70	315	1252	1800	2400	684	794	516	690	7-10
46 T4 64 / 48 T4 64R	320	230	180	61	383	90	330	1252	1800	2400	952	1037	567	793	8-10
46 T4 65 / 48 T4 65R	480	345	270	71	383	100	330	1252	1800	2400	1401	1352	660	928	9-30
46 T4 66 / 48 T4 66R	600	450	360	81	383	100	370	1252	1800	2400	1516	1587	756	1129	10-40

	permissible load [kN]														
	downwards (Fz)			lateral (Fx, Fy)			upwards (-Fz)								
Type	100	250	350°C	100	250	350°C	100	250	350°C	E	A	B	C	H	kg
49 T4 64	302	219	178	30% x Fz			-	-	-	810	450	560	710	200	293
49 T4 65 HL	1055	700	534	50% x Fz			-	-	-	810	670	640	735	200	473
49 T4 65 GS •	1055	700	534	527	350	267	120	108	95	810	780	900	805	200	822
49 T4 65 FP •	1055	700	534	527	350	267	120	108	95	810	780	900	805	200	770

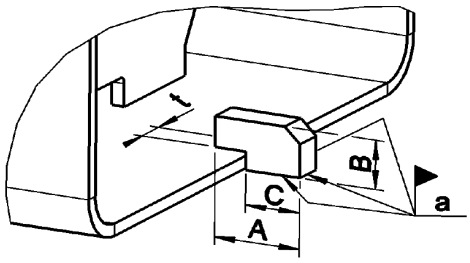
Dimension for Lift off restraints / weld sizes see page 33

• Trunnion design: trunnion hole diameter d_N = 381 mm

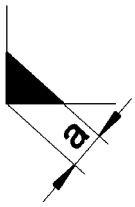
	permissible load [kN] in each foot direction								
Type	100	250	350°C	E	A	B	C	H	kg
49 T4 64 G2A	302	219	178	810	450	560	710	200	386
49 T4 64 G2P	302	219	178	810	450	560	710	200	386
49 T4 64 G3	302	219	178	810	450	560	710	200	479
49 T4 64 G4	302	219	178	810	450	560	710	200	572
49 T4 65 HL G2P	1055	700	534	810	670	640	735	200	744

Lift off restraints for Type 49 .. 64

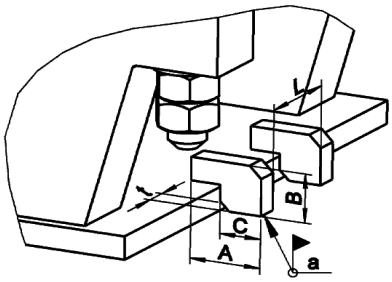
The permissible short time lift-off load of the clamp bases is 10% of the permissible loads given in the catalogue



Type	for clamp base	A	B	C	t	a	weight 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



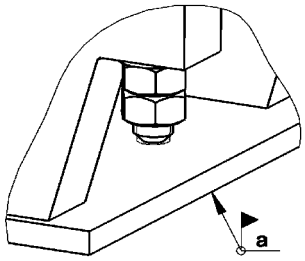
Included lift off restraints of Type 49 .. 65 GS



For Type	A	B	C	L	t	a
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

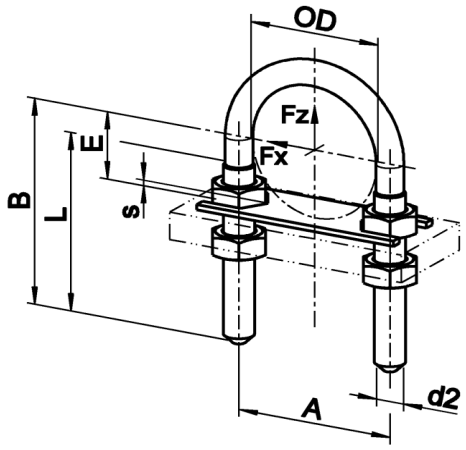
Weld sizes for Type 49 .. 65 FP

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



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

U-Bolts Type 40



Type 40 R0 .8 to 40 82 .8

For concurrent load use the following interaction equation:

$$\frac{f_z}{F_z} + \frac{f_x}{F_x} \leq 1$$

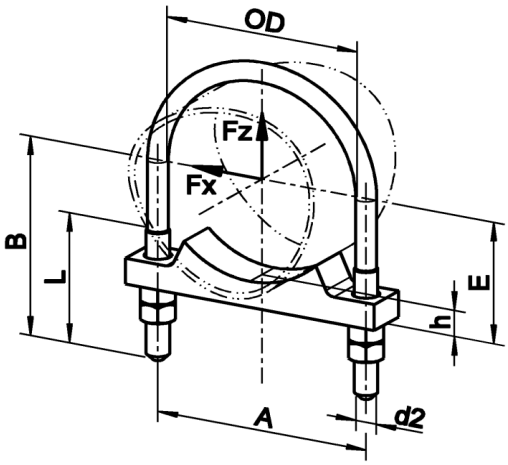
Where fz and fx = applied loads
Fz and Fx = maximum allowable loads from table below

Type	OD	A	B	d2 x L	E	thickness of distance plate s	max. loads [kN] S235JR • Fx	max. loads [kN] S235JR • Fz	max. loads [kN] 1.4301 • Fx	max. loads [kN] 1.4301 • Fz	weight (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 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	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 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

→ 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

U-Bolts Type 40 .. .8 HL



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

For concurrent load use the following interaction equation:

$$\frac{f_z}{F_z} + \frac{f_x}{F_x} \leq 1$$

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

Type	OD	A	B	d2 x L	E	h	max. loads [kN] S235JR • Fx	max. loads [kN] S235JR • Fz	max. loads [kN] 1.4301 • Fx	max. loads [kN] 1.4301 • Fz	weight (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

Special application of double clamp bases up to DA 377

Type	permissible load [kN] 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