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Abgasseite  
EXHAUST SIDE

Beim Montieren der Leitung ist die  
Woermeausdehnung von 4 mm gegen Freies Ende  
von der theor. Mitte aus zu beruecksichtigen  
WHEN ASSEMBLING THE PIPING THE THERMAL  
EXPANSION OF 4 MM TOWARDS THE FREE END  
FROM THE THEORETICAL CENTRE IS TO BE CONSIDERED

theoretische Mitte  
THEORETICAL CENTRE

Antriebsseite  
DRIVING END

Freies Ende  
FREE END

Freies Ende  
FREE END

Abgasseite  
EXHAUST SIDE

Brennstoffseite  
FUEL SIDE

Antriebsseite  
DRIVING END

Alle Flansanschlüsse am Motor sind mit Gegenflanschen versehen (Blindflansch), ausgenommen der Anschluss fuer den Gasaustritt am Turbolader. Die Blindflansche sind nach dem betreffenden Rohrdurchmesser des Werftanschlusses aufzubohren. THE PIPE CONNECTIONS ON THE ENGINE ARE SUPPLIED WITH MATING FLANGES BLIND, WITH EXCEPTION OF THE TURBOCHARGER EXHAUST GAS OUTLET, BLIND FLANGES TO BE DRILLED TO MATCH PIPE DIA SUPPLIED BY THE SHIPYARD.

Die Gewinde-Anschlüsse werden komplett geliefert  
SCREWED CONNECTIONS ARE SUPPLIED COMPLETE

Gasaustritt-Stellung GAS OUTLET POSITION	x	y
15°	2589,5	6122,5
30°	2758,5	6052,5
45°	2903,5	5941

44 1:10

(45) 1:20

Technical drawing of a circular structure, likely a culvert or tunnel, showing dimensions and reinforcement details. The drawing includes a cross-section view with the following dimensions and features:

- Overall diameter: 645
- Inner diameter: 510
- Reinforcement: 20x $\phi$ 22 (20 bars of 22mm diameter)
- Wall thickness: 505

Brennstoffseite  
FUEL SIDE

Internes TL Oelssystem  
INTERNAL TC OIL SYSTEM®

1 x MET53MA

Standard-Ausführung  
STANDARD EXECUTION

\* Optionelle Ausführung (wenn verlangt)  
OPTIONAL EXECUTION (IF REQUIRED)

[illegible]

	Units	mm	kg	IDE		Basic Material				Net Weight						
SURFACE PROTECTION SEE GROUP 0344	Mode	21.04.2011				hklx01	Klausner	Scale	1:30	Size	A0	Page	1/2	Material ID		
TOLERANCING PRINCIPLE ISO8015	Okid	27.04.2011				bha009	Haag									
GENERAL TOLERANCES ACCORDING TO ISO2768-mk	Appd	27.04.2011				bha009	Haag	8020		Drawing ID	DAAD016741				Rev.	B





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Abgasseite  
EXHAUST SIDE  
theoretische Mitte  
THEORETICAL CENTRE

Beim Montieren der Leitung ist die Waermeausdehnung von 4 mm gegen Freies Ende von der theor. Mitte aus zu beruecksichtigen  
WHEN ASSEMBLING THE PIPING THE THERMAL EXPANSION OF 4 MM TOWARDS THE FREE END FROM THE THEORETICAL CENTRE IS TO BE CONSIDERED

Antriebsseite  
DRIVING END

Freies Ende  
FREE END

Freies Ende  
FREE END

Antriebsseite  
DRIVING END

Brennstoffseite  
FUEL SIDE

Alle Flansanschlüsse am Motor sind mit Gegenflansen versehen (Blindflansch), ausgenommen der Anschluss fuer den Gasaustritt am Turbolader. Die Blindflansen sind nach dem betreffenden Rohrdurchmesser des Werflanschlusses aufzubohren. THE PIPE CONNECTIONS ON THE ENGINE ARE SUPPLIED WITH MATING FLANGES BLIND, WITH EXCEPTION OF THE TURBOCHARGER EXHAUST GAS OUTLET, BLIND FLANGES TO BE DRILLED TO MATCH PIPE DIA SUPPLIED BY THE SHIPYARD.

Die Gewinde-Anschlüsse werden komplett geliefert  
SCREWED CONNECTIONS ARE SUPPLIED COMPLETE

Gasaustritt-Stellung GAS OUTLET POSITION	x	y
15°	2519	5981,5
30°	2646	5929
45°	2755	5845,5

44 1:20

(45) 1:20

TURBOCHARGER 1x A165-L



Internes TL Oelssystem  
INTERNAL TC OIL SYSTEM

\* Optionelle Ausführung (wenn verlangt)  
OPTIONAL EXECUTION (IF REQUIRED)

\*\* Standard-Ausführung  
STANDARD EXECUTION

\*\*\* WITH EXHAUST WASTE GATE FOR LLT (OPTIONAL)

Net Weight				0.001					
Quantity PER ENGINE		1	001	107_390_729_500	FLANGE DIMENSIONS	107_390_729		0.001	
S/O No.	Material ID	Material Name	Dimension/Vol./Dimension		Standard or Drawing	Basis Material / Material Standard	Remarks	Part No.	
						O-Code XXXXXX			
						Standard ISO		H	
Material	Serial	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date

 Winterthur Gas & Diesel			Product BRT-flex48T-D			PIPE CONNECTION PLAN  Rohranschlusplan										
Units			mm	kg	IDE				Basic Material							
Mode	24.06.2016					hdo002 H. Doerre		Scale	1:20		Size	A0	Page	1/2	Material	
Chsk	11.01.2017					ihe003 Hergatz		Design Group		8020	Drawing ID	DAAD080041				
Chsk	11.01.2017					bha009 Haag										

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ISO																
6 bar							16 bar									
PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS			PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS					
6 bar	25	100	14	75	4	M10	11	16 bar	25	115	16	85	4	M12	14	
	32	120	16	90	4	M12	14		32	140	18	100	4	M16	18	
	40	130	16	100	4	M12	14		40	150	18	110	4	M16	18	
	50	140	16	110	4	M12	14		50	165	19	125	4	M16	18	
	65	160	16	130	4	M12	14		65	185	20	145	8	M16	18	
	80	190	18	150	4	M16	18		80	200	20	160	8	M16	18	
	100	210	18	170	4	M16	18		100	220	22	180	8	M16	18	
	125	240	20	200	8	M16	18		125	250	22	210	8	M16	18	
	150	265	20	225	8	M16	18		150	285	24	240	8	M20	22	
	200	320	22	280	8	M16	18		200	340	26	295	12	M20	22	
	250	375	24	335	12	M16	18		250	405	32	355	12	M24	26	
	300	440	24	395	12	M20	22		300	460	32	410	12	M24	26	
	350	490	26	445	12	M20	22		350	520	35	470	16	M24	26	
	400	540	28	495	16	M20	22		400	580	38	525	16	M27	30	
	450	595	30	550	16	M20	22		450	640	42	585	20	M27	30	
	500	645	30	600	20	M20	22		500	715	46	650	20	M30	33	
PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS			PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS					
10 bar	25	115	16	85	4	M12	14	40 bar	25	115	16	85	4	M12	14	
	32	140	18	100	4	M16	18		32	140	18	100	4	M16	18	
	40	150	18	110	4	M16	18		40	150	18	110	4	M16	18	
	50	165	19	125	4	M16	18		50	165	20	125	4	M16	18	
	65	185	20	145	8	M16	18		65	185	22	145	8	M16	18	
	80	200	20	160	8	M16	18		80	200	24	160	8	M16	18	
	100	220	22	180	8	M16	18		100	235	26	190	8	M20	22	
	125	250	22	210	8	M16	18		125	270	28	220	8	M24	26	
	150	285	24	240	8	M20	22		150	300	30	250	8	M24	26	
	200	340	24	295	8	M20	22		200	375	36	320	12	M27	30	
	250	395	26	350	12	M20	22		250	450	44	385	12	M30	33	
	300	445	26	400	12	M20	22		300	515	48	450	16	M30	33	
	350	505	28	460	16	M20	22		350	580	54	510	16	M33	36	
	400	565	32	515	16	M24	26		400	660	60	585	16	M36	39	
	450	615	38	565	20	M24	26									
	500	670	38	620	20	M24	26									

JIS

PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS				PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS				
5 bar	25	95	10	75	4	M10	12	16 bar	25	125	14	90	4	M16	19	
	32	115	12	90	4	M12	15		32	135	16	100	4	M16	19	
	40	120	12	95	4	M12	15		40	140	16	105	4	M16	19	
	50	130	14	105	4	M12	15		50	155	16	120	8	M16	19	
	65	155	14	130	4	M12	15		65	175	18	140	8	M16	19	
	80	180	14	145	4	M16	19		80	200	20	160	8	M20	23	
	100	200	16	165	8	M16	19		100	225	22	185	8	M20	23	
	125	235	16	200	8	M16	19		125	270	22	225	8	M22	25	
	150	265	18	230	8	M16	19		150	305	24	260	12	M22	25	
	200	320	20	280	8	M20	23		200	350	26	305	12	M22	25	
	250	385	22	345	12	M20	23		250	430	28	380	12	M24	27	
	300	430	22	390	12	M20	23		300	480	30	430	16	M24	27	
	350	480	24	435	12	M22	25		350	540	34	480	16	M30	33	
	400	540	24	495	16	M22	25		400	605	38	540	16	M30	33	
	450	605	24	555	16	M22	25		450	675	40	605	20	M30	33	
	500	655	24	605	20	M22	25		500	730	42	660	20	M30	33	
PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS				PN	DN	OUT.DIA.	THICK	DIM. FOR SCREWS				
10 bar	25	125	14	90	4	M16	19	30 bar	25	130	20	95	4	M16	19	
	32	135	16	100	4	M16	19		32	140	22	105	4	M16	19	
	40	140	16	105	4	M16	19		40	160	22	120	4	M20	23	
	50	155	16	120	4	M16	19		50	165	22	130	8	M16	19	
	65	175	18	140	4	M16	19		65	200	26	160	8	M20	23	
	80	185	18	150	8	M16	19		80	210	28	170	8	M20	23	
	100	210	18	175	8	M16	19		100	240	32	195	8	M22	25	
	125	250	20	210	8	M20	23		125	275	36	230	8	M22	25	
	150	280	22	240	8	M20	23		150	325	38	275	12	M24	27	
	200	330	22	290	12	M20	23		200	370	42	320	12	M24	27	
	250	400	24	355	12	M22	25		250	450	48	390	12	M30	33	
	300	445	24	400	16	M22	25		300	515	52	450	16	M30	33	
	350	490	26	445	16	M22	25		350	560	54	495	16	M30	33	
	400	560	28	510	16	M24	27		400	630	60	560	16	M36	39	
	450	620	30	565	20	M24	27									
	500	675	30	620	20	M24	27									

Substitute for:										PC	Q-Code	X	X	X	X	X
Modif	A	EAAD084180	04.10.2012													
		Number	Drawn Date		Number	Drawn Date		Number	Drawn Date		Number	Drawn Date				
		Product <b>W-2S</b>				Flange Dimensions										
Made	19.09.2007	N. Brand			Main Drw.	Page 1 / 1	Material ID <b>107.390.729.500</b>									
Chkd	27.09.2007	M. Frei			Design Group	Drawing ID <b>107.390.729</b>										Rev <b>A</b>
Appd	27.09.2007	B. Haag			<b>8020</b>											

## WinGD-6RT-flex48T-D\_pipe-connection-plan

### TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2018-02-26	DRAWING SET	First web upload

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