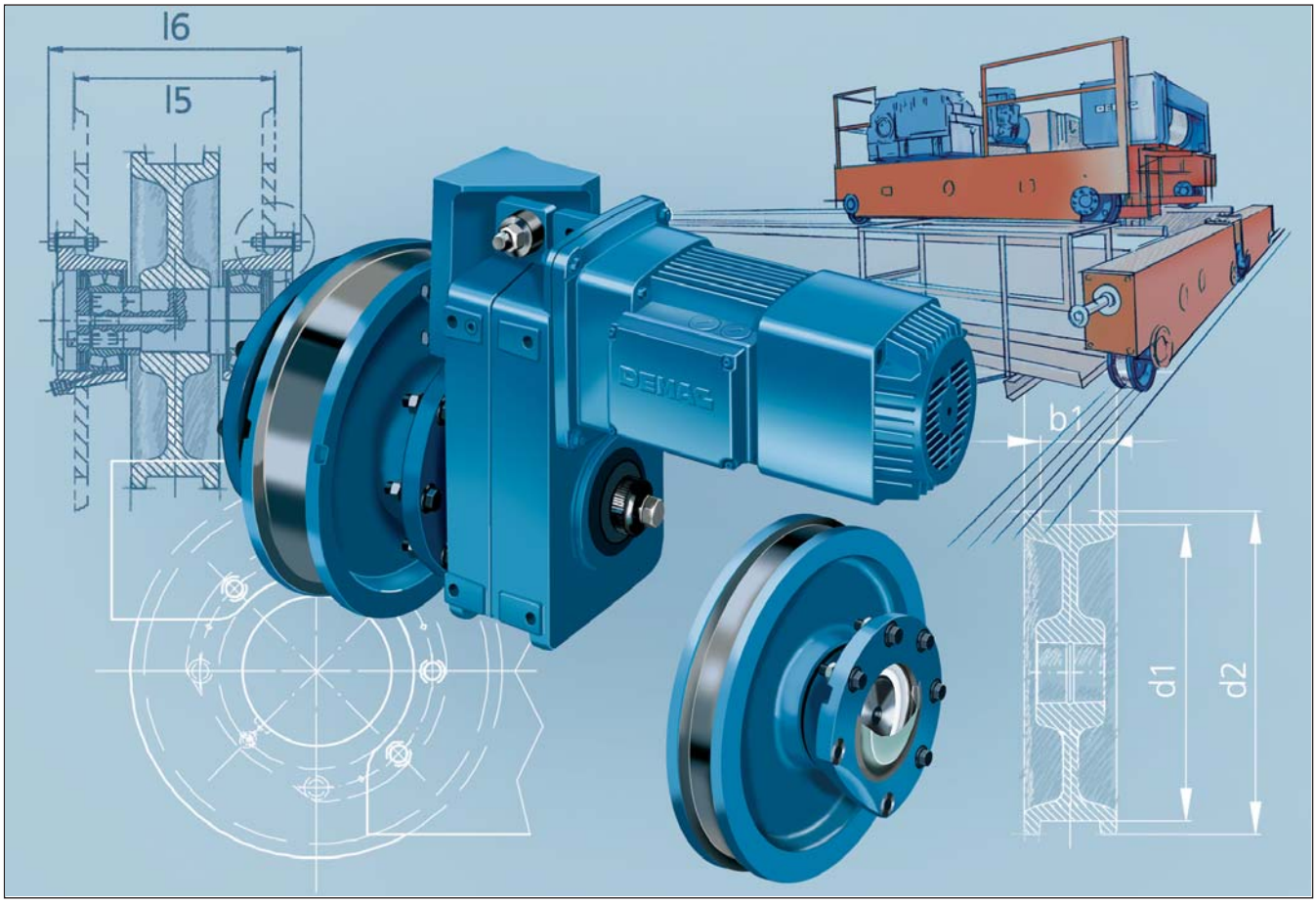
DEMAG
Cranes & Components

Demag DWS wheel set

(previous designation: RAE/RNE)



Accompanying documents

Drive Designer

Logic-guided selection and configuration of Demag geared motors and travel unit components.

Drive Designer Online at:

www.demag-drivedesigner.com

provides all information online as well as 2D and 3D models available to facilitate design work (no installation required; always up-to-date; many special functions).

The configuration system for other Demag products is accessible via the Designer Portal www.demag-designer.de

General documents	Part No.			
	DE	EN	FR	ES
Brochures				
Demag Drives brochure	208 732 44	208 734 44	208 735 44	208 736 44
Demag wheel range brochure	208 722 44	208 724 44	208 725 44	208 726 44
Catalogues/technical data				
Drive Designer Online	www.demag-drivedesigner.com			
Geared motor catalogue	203 151 44	203 151 44	203 152 44	203 153 44
DRS wheel block system	203 350 44	203 352 44	203 353 44	203 354 44
Demag DWS wheel sets technical data	203 687 44	203 688 44	203 689 44	203 690 44
Geared travel motors catalogue – Volume 3 – Quick selection and gearbox limit torque – DE / EN / FR	203 013 44			–
Geared travel motors catalogue – Volume 3 – Quick selection and gearbox limit torque – IT / EN / ES	–	203 014 44	–	203 014 44
Assembly instructions				
D 11 - D 41 helical gearbox assembly instructions	214 719 44	214 720 44	214 721 44	214 722 44
D 50 - D 90 helical gearbox assembly instructions	214 150 44	214 151 44	214 152 44	214 153 44
W 10 - W 100 angular gearbox assembly instructions	214 057 44	214 058 44	214 059 44	214 060 44
A 10 - A 90 offset gearbox assembly instructions	214 205 44	214 206 44	214 207 44	214 208 44
Gearbox assembly instructions FG 06, FG 08, FG 10	206 217 44	206 218 44	206 219 44	206 220 44
Motor assembly instructions – Z motor range	214 227 44	214 228 44	214 229 44	214 230 44
KBA - KBF motor assembly instructions	214 317 44	214 318 44	214 319 44	214 320 44
Brake accessories for Z motor range, assembly instructions	214 040 44	214 041 44	214 042 44	214 043 44
Assembly instructions / Plug connection for KB and Z motor ranges	214 021 44	214 022 44	214 023 44	214 024 44
Encoders for Z motors assembly instructions	214 371 44	214 372 44	214 373 44	214 374 44
DRS 112 - 200 wheel block system assembly instructions	214 275 44	214 276 44	214 277 44	214 278 44
DRS 250 - 500 wheel block system assembly instructions	214 326 44	214 327 44	214 328 44	214 329 44
DWS wheel set assembly instructions	214 132 44	214 133 44	214 134 44	214 135 44

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Contents

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DWS wheel set
1 General

Demag DWS wheel sets are used for rail-guided travel applications in the heavy load range. They are available as driven and non-driven wheel sets. Demag offset or angular geared motors can be used as drive units.

The use of these proven series-manufactured components offers a high level of functional reliability for customer designs and guarantees interchangeability without the need for much conversion.

Owing to their versatility and wide range of applications, Demag wheel sets are not only used in the crane and materials handling sector, but also for related mechanical engineering solutions.

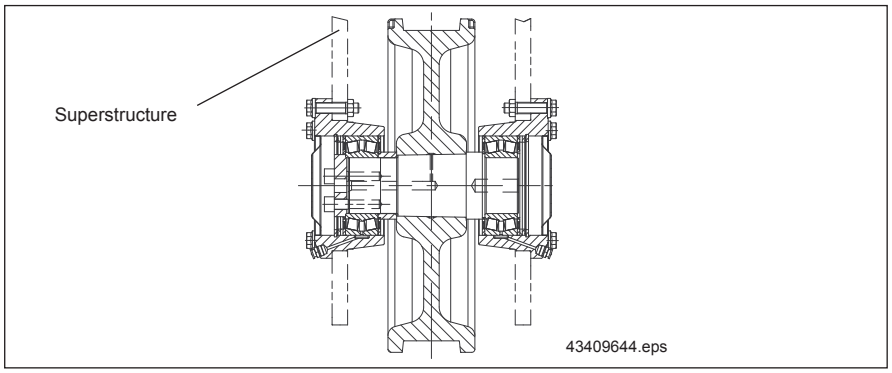
Various sizes with load capacities up to 60 t are available.

Size	Max. load capacity [kg]	Travel wheel diameter [mm]
DWS 400	28 000	400
DWS 500	40 000	500
DWS 630	60 000	630

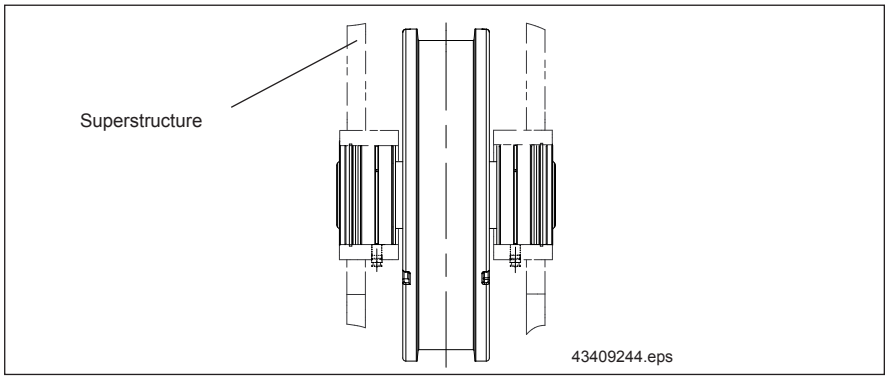
Special features of the DWS wheel set include:

- Long service life thanks to standard relubrication facility
- Ideally suited to Demag travel drive system with offset or angular geared motors
- Guide flange wear indicator
- Rapid installation and removal of the travel wheel from the travel unit using conventional tools
- Flange bearings provided with recesses to attach pullers
- Simple track gauge adjustment thanks to interchangeable distance washers between the anti-friction bearings and retaining rings.

Non-driven DWS, with flange bearing (previous designation: RNE)



Non-driven DWS, without flange bearing



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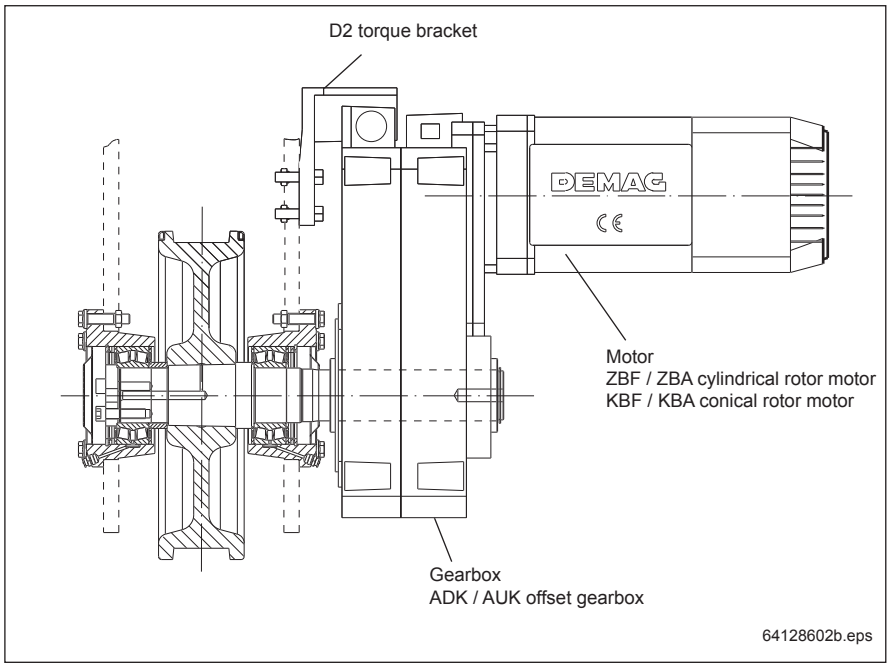
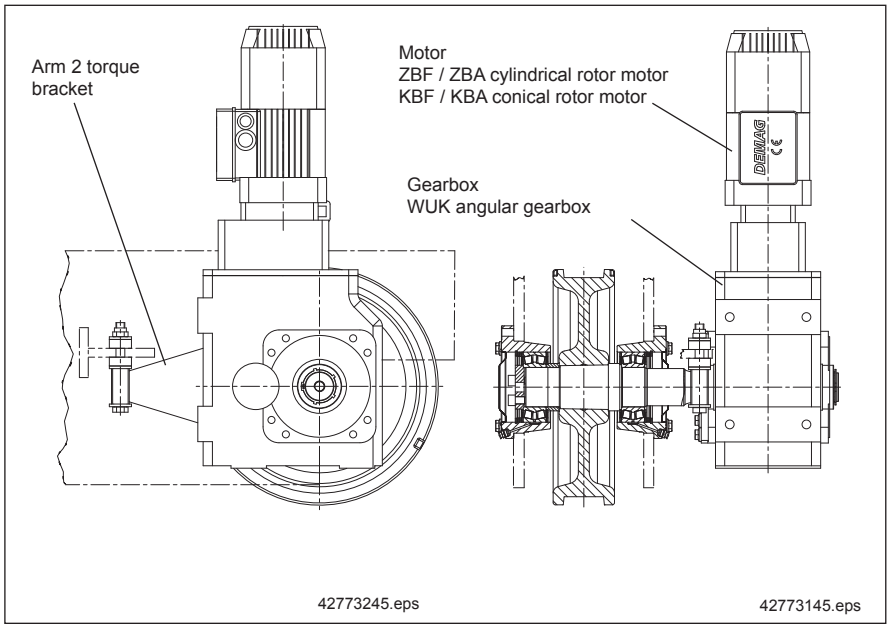
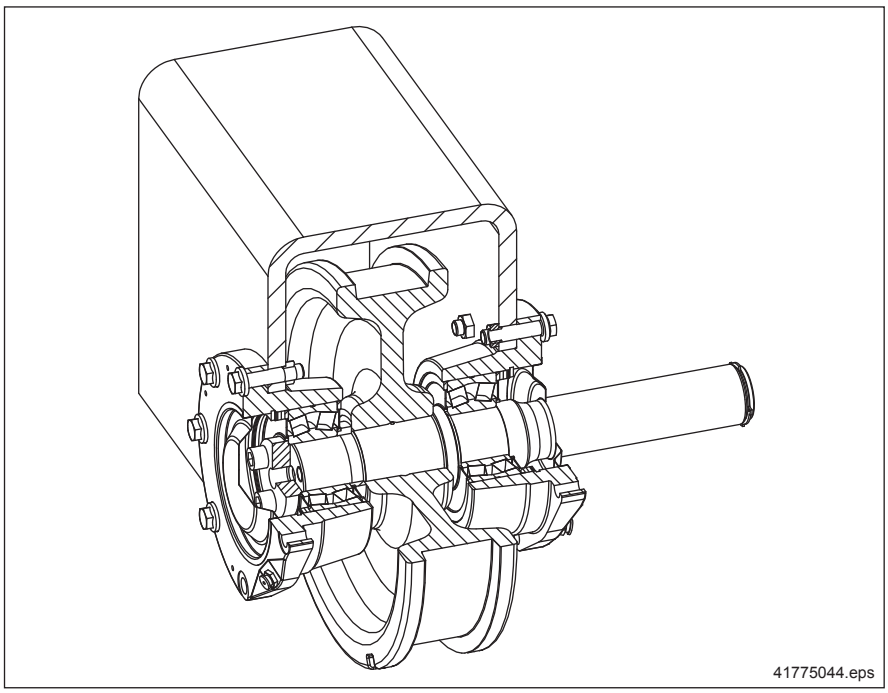
Driven DWS, with offset geared motor (previous designation: RAE)



Driven DWS, with angular geared motor (previous designation: RAE)



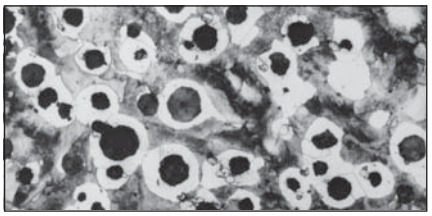
2 Design and installation



Demag DWS wheel sets are characterised by low maintenance costs, wear-reducing materials and low operating noise levels.

Travel wheel

The travel wheel material GJS-700-2 (GGG70) is spheroidal graphite cast iron, a material with a self-lubricating property thanks to encapsulated graphite granules. This means the travel wheels combine high wear resistance with low travel resistance, so minimising wear on the rail. The high inherent shock-absorbing effect of the travel wheels ensures smooth travel characteristics of the travel unit. Travel wheels with guide features, e.g. flange-guided, with a tread distance to the travel rail of min. 1 mm are available. If a high level of wear is to be expected, e.g. handling casting sand or similar material, the travel wheel surface and the flange can be hardened to 56 ± 2 HRc (R70). Hardening is intended only to minimise wear.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Spheroidal graphite, surrounded by white ferrite rings embedded in a basic pearlite structure, can be seen above in this magnification of the material's structure.

The self-lubricating effect of spheroidal graphite cast iron reduces wear on the travel wheel and the rail head.

Anti-friction bearings

Self-aligning roller bearings, which can be regreased, are used as standard. Specially formed mounting flanges can compensate for slightly irregular or skewed surfaces adjacent to the mounting points.

Temperature range

The standard lubricant for the anti-friction bearings is used in a temperature range of -20°C to +60°C. With temperatures of +70°C to +150°C a special lubricant (R94) must be used. With temperatures exceeding +50°C a reduction in the load capacity should be carried according to section 4.4.2.

Paint finish

The travel wheel as well as the flanged bearings are provided with a paintable primer coat (R81) or a single paint coat (R82) with a coat thickness of 40 µ in RAL 5009 (azure blue). If wished, the wheel set can be finished with a top coat in a different shade (R88). The connecting surfaces are only provided with corrosion protection (R89). After assembly the complete wheel set unit must be protected against corrosion as required.

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Fitting variants

Care possible for wheels sets corner-bearing installation (R60) and box-girder installation (R61) are possible for wheel sets with flange bearings.

The design of the flanged bearing specially developed for corner-bearing installation ensures that the travel wheel/shaft unit can be fitted and removed directly by rolling the complete unit in and out if a girder with a cut-out on one corner is used here.

The steel superstructure must be designed so that the protruding drive shaft does not prevent the unit from being removed.

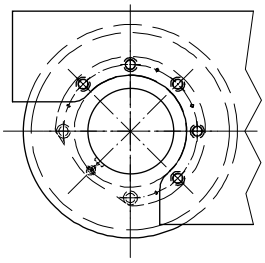
We recommend ordering the wheel set pre-assembled for corner-bearing installation (R63) as the unit can be quickly fitted on site here.

Wheel sets can also be supplied disassembled. When installed in box-section girders, this offers the advantage that they do not have to be disassembled before installation.

The existing centring arrangement on the flange side eliminates the need for complicated alignment and pinning of the wheel sets in relation to each other if the bore holes accommodating the wheel set flanges are precisely machined for both corner-bearing and box-section installation in the steel superstructure.

Installation examples:

Corner-bearing installation



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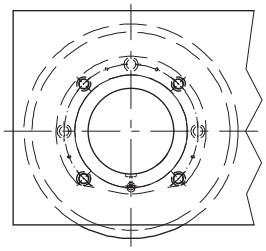
Box-girder installation



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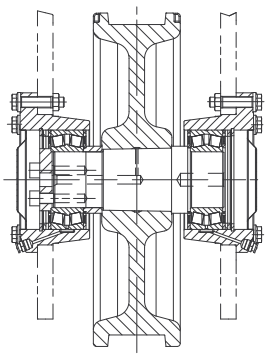
The holes to accommodate the wheel set flanges in a box-section girder can also be flame-cut for refurbishment work or similar applications in which the existing steel superstructure cannot be precisely machined, for example. Precise alignment of the wheel set wheels must then be ensured without fail.

The exact positions are fixed during assembly using centring pins (R62) so that the flange may be removed at any time and accurately re-positioned.

The wheel set can also be installed in the prepared steel superstructure directly, without flange bearings.

Installation examples:

DWS with flange bearing



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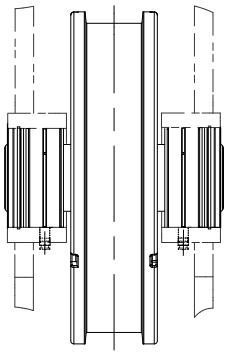
DWS without flange bearing



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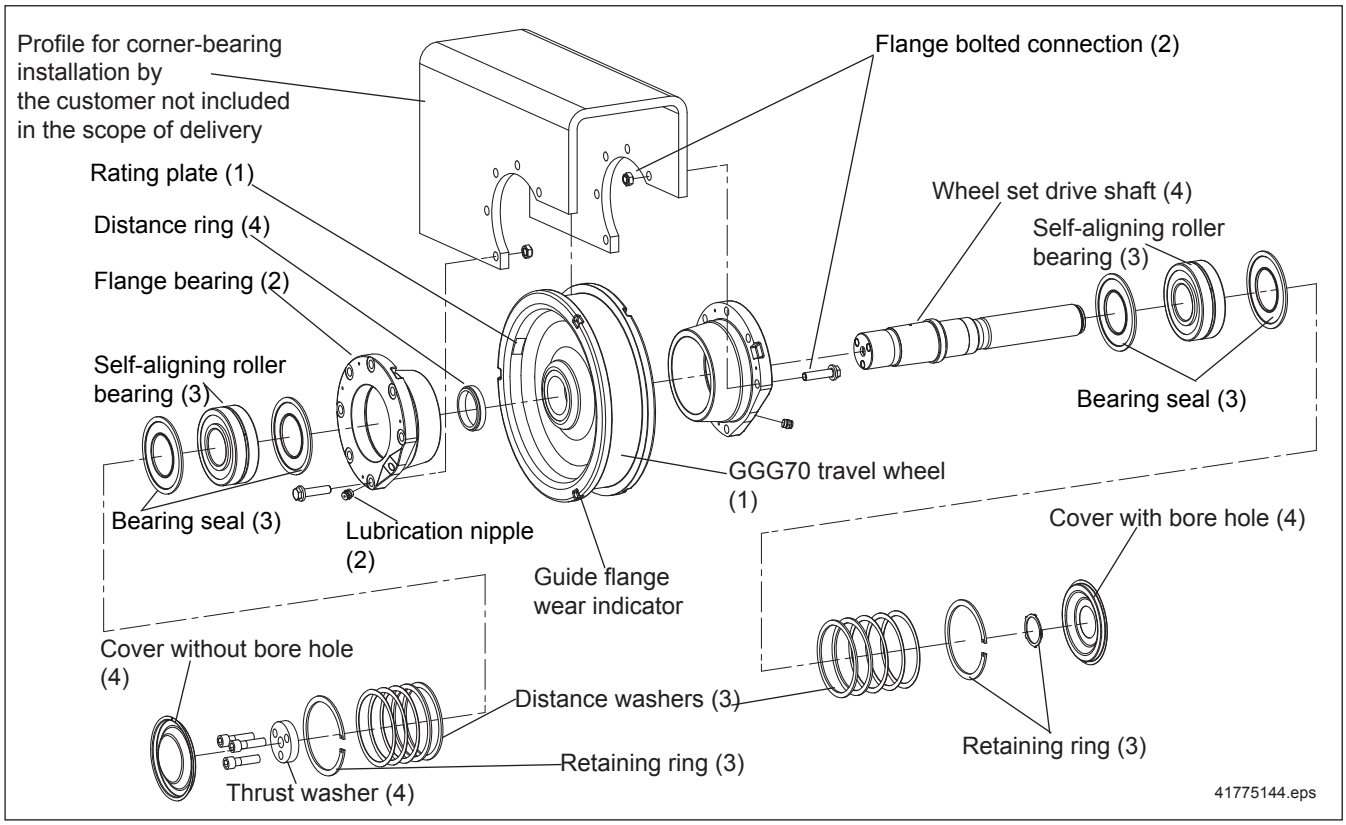
Wheel set sub-assemblies



The wheel set consists of four sub-assemblies:

- Travel wheel sub-assembly (1)
- Flange bearing sub-assembly (2)
- Anti-friction bearing sub-assembly (3)
- Wheel set shaft sub-assembly (4)

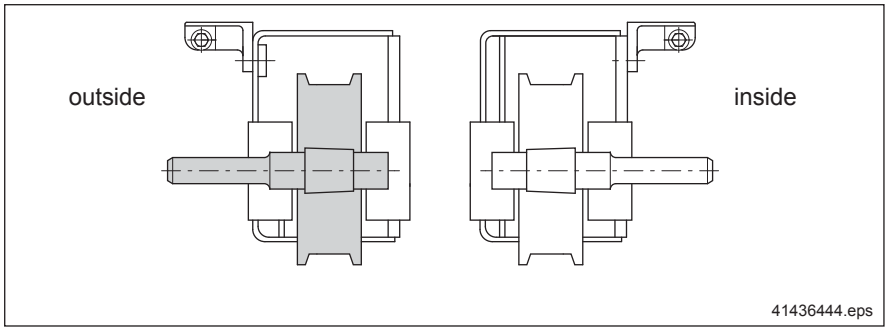
The flange bearing sub-assembly (2) is not included with direct installation without flange bearing.

Drives

The following are used as drives for DWS wheel sets: Demag ADK / AUK offset geared motors or WUK angular geared motors with ZBF/ZBA cylindrical-rotor motors with direct drive input or also with a coupling connection with KBF/KBA conical-rotor motors. The special Demag travel motors can be either mains-operated with direct control or used with an inverter. For offset gearboxes, the gearbox is connected to the superstructure by means of a D2 torque bracket and with angular geared motors using an arm 2 torque bracket.

DWS units can be operated as single drives or as central drive units.

With single drive the drive can be moved from inside to outside by rotating the travel wheel shaft unit .



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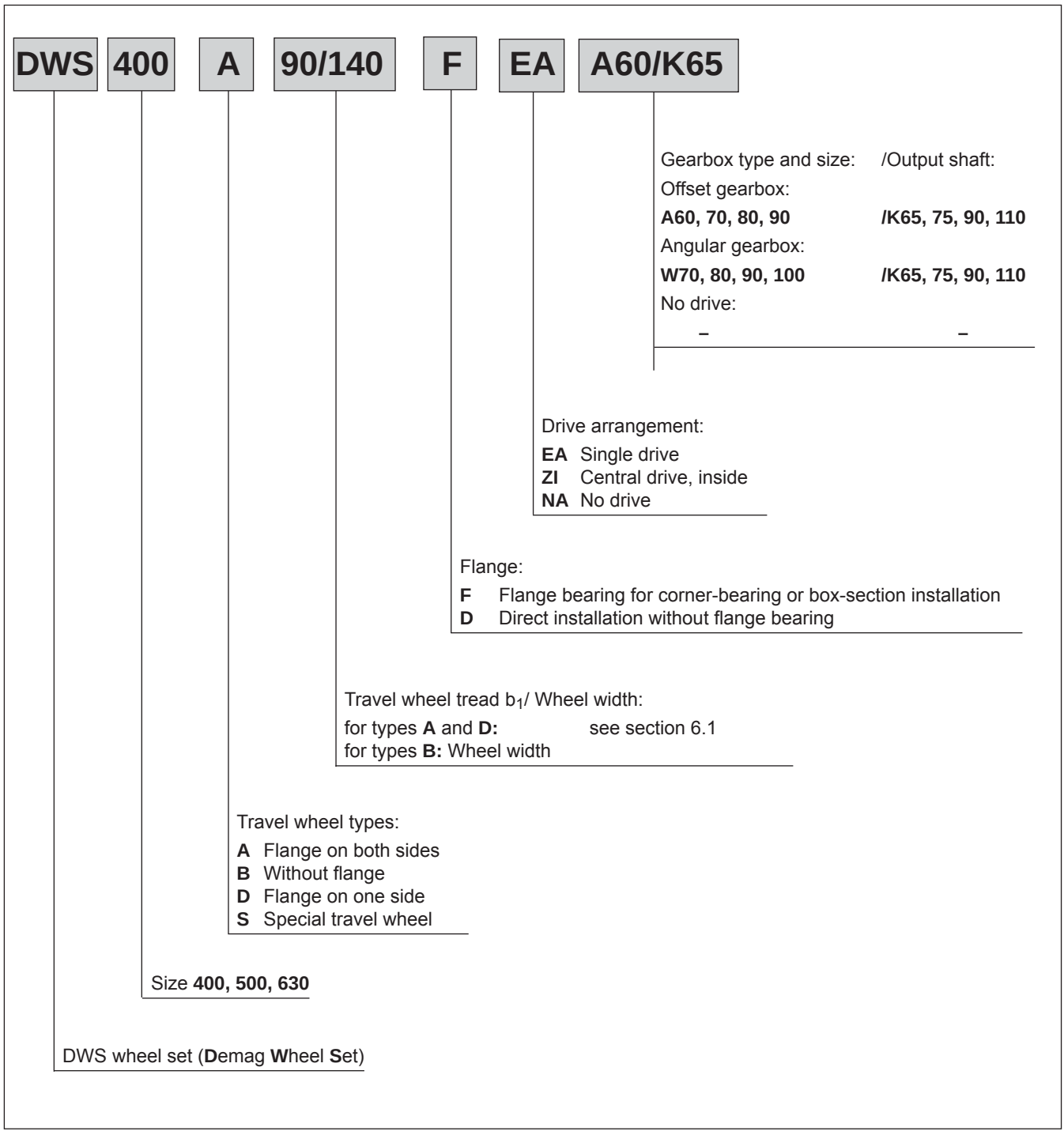
3 Wheel set mounting code



Special features and options are shown as an option code under the mounting code (R60...R89).

For example:
DWS 400 A 90/140 F EA A60/K65

R60 R63 R82 R89

4 Wheel set load capacities

The following tables in sections 4.1 to 4.3 specify the wheel set load capacities as a function of the following parameters:

- Wheel set size:	- 400, 500 and 630 mm
- Wheel-to-rail contact:	- Linear contact
	- Rail material
	- Travel wheel material GGG70
	- Total skewing angle ≤ 2 $^{0}/_{00}$
	- Useful rail head width 40 to ≥100 mm -
Group of mechanisms:	- FEM 1Bm to 5m; ISO: M3 to M8
- Travel speed:	- 16 to 160 m/min
Standard temperature range	- -20°C to +50°C

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4.1 Load capacity DWS 400

Linear contact
Travel wheel material: Spheroidal graphite cast iron material GJS-700-2 (GGG-70)
Rail material: E 360 (St 70-2), E 335 (St 60-2), S 355 J 2 G 3 (St 52-3)
Total skewing angle ≤ 2 $^{0}/_{00}$

Group of mechanisms		Useful rail head width [mm]	Permissible wheel loads [kg]										
			Travel speed [m/min]										
FEM	ISO		16	20	25	31,5	40	50	63	80	100	125	160 [1]
1 Bm	M 3	40	21581				20880	19528	18220	16960	15862	14835	13776
		50	26976				26100	24410	22775	21200	19827	18544	17220
		60	28000						27330	25440	23793	22252	20664
		70									27758	25961	24108
		80											27552
		≥ 90											
1 Am	M 4	40	21581	20880	19528	18220	16960	15862	14799	13776	12884	12050	11189
		50	26976	26100	24410	22775	21200	19827	18499	17220	16105	15062	13987
		60	28000			27330	25440	23793	22199	20664	19326	18074	16784
		70						27758	25899	24108	22547	21087	19582
		80								27552	25768	24099	22379
		90										27112	25176
		≥ 100											27974
2 m	M 5	40	18134	16960	15862	14799	13776	12884	12021	11189	10842	10603	10344
		50	22668	21200	19827	18499	17220	16105	15026	13987	13553	13254	12930
		60	27201	25440	23793	22199	20664	19326	18031	16784	16263	15904	15516
		70	28000		27758	25899	24108	22547	21036	19582	18974	18555	18103
		80					27552	25768	24042	22379	21684	21206	20689
		90			28000				27047	25176	24395	23856	23275
		≥ 100								27974	27105	26507	25861
3 m	M 6	40	14730	13776	12884	12021	11189	10842	10594	10344	10116	9893	9652
		50	18412	17220	16105	15026	13987	13553	13243	12930	12645	12366	12064
		60	22094	20664	19326	18031	16784	16263	15892	15516	15174	14839	14477
		70	25777	24108	22547	21036	19582	18974	18540	18103	17703	17312	16890
		80	28000	27552	25768	24042	22379	21684	21189	20689	20232	19786	19303
		90	28000			27047	25176	24395	23837	23275	22761	22259	21410
		≥ 100					27974	27105	26486	25861	24652	23055	
4 m	M 7	40	11964	11189	10842	10594	10344	10116	9885	9652	9439	9230	9005
		50	14955	13987	13553	13243	12930	12645	12356	12064	11798	11538	11257
		60	17946	16784	16263	15892	15516	15174	14827	14477	14158	13845	13508
		70	20937	19582	18974	18540	18103	17703	17299	16890	16518	16153	15759
		80	23928	22379	21684	21189	20689	20232	19770	19303	18877	18461	17472
		90	26919	25176	24395	23837	23275	22761	22241	21511	20118	18815	
		≥ 100	28000	27974	27105	26486	25861	24768	23109				
5 m	M 8	40	10603	10369	10140	9908	9674	9461	9245	9027	8827	8633	8422
		50	13254	12961	12675	12385	12093	11826	11556	11283	11034	10791	10528
		60	15904	15553	15210	14863	14512	14191	13867	13540	13241	12949	12633
		70	18555	18146	17745	17340	16930	16557	16178	15797	15448	15107	14226
		80	21206	20738	20280	19817	19349	18922	18490	17514	16380	15319	
		90	23856	23330	22815	22294	21562	20166	18815				
		≥ 100	26507	25922	24828	23164							

1) Wheel loads at higher travel speeds on request

4.2 Load capacity DWS 500

Linear contact
Travel wheel material: Spheroidal graphite cast iron material GJS-700-2 (GGG-70)
Rail material: E 360 (St 70-2), E 335 (St 60-2), S 355 J 2 G 3 (St 52-3)
Total skewing angle ≤ 2 $^{0}/_{00}$

Group of mechanisms		Useful rail head width [mm]	Permissible wheel loads [kg]										
			Travel speed [m/min]										
FEM	ISO		16	20	25	31,5	40	50	63	80	100	125	160 [1]
1 Bm	M 3	40			26976			26100	24352	22668	21200	19827	18412
		50			33720			32625	30440	28335	26500	24784	23015
		60						39151	36528	34002	31800	29741	27618
		70					40000			39669	37100	34698	32221
		80										38327	35591
		≥ 90											
1 Am	M 4	40	26976		26100	24352	22668	21200	19780	18412	17220	16105	14955
		50	33720		32625	30440	28335	26500	24725	23015	21525	20131	18694
		60			39151	36528	34002	31800	29670	27618	25830	24157	22433
		70					39669	37100	34615	32221	30135	28183	26172
		80			40000				38235	35591	33286	31131	28909
		≥ 90											
2 m	M 5	40	24237	22668	21200	19780	18412	17220	16066	14955	13987	13553	13222
		50	30297	28335	26500	24725	23015	21525	20083	18694	17484	16941	16528
		60	36356	34002	31800	29670	27618	25830	24100	22433	20980	20329	19833
		70		39669	37100	34615	32221	30135	28116	26172	24477	23717	23139
		80		40000		38235	35591	33286	31057	28909	27037	25286	23481
		≥ 90											
3 m	M 6	40	19687	18412	17220	16066	14955	13987	13542	13222	12930	12645	12337
		50	24608	23015	21525	20083	18694	17484	16927	16528	16163	15806	15421
		60	29530	27618	25830	24100	22433	20980	20313	19833	19396	18968	18505
		70	34452	32221	30135	28116	26172	24477	23698	23139			
		80	38055	35591	33286	31057	28909	27037	25226	23481	21961	20539	19073
		≥ 90											
4 m	M 7	40	15991	14955	13987	13542	13222	12930	12635	12337	12064	11798	11511
		50	19988	18694	17484	16927	16528	16163	15794	15421	15081	14748	14388
		60	23986	22433	20980	20313	19833	19396	18952	18505			
		70	27984	26172	24477	23698	23139	22065	20587		17922	16762	15565
		80	31057	29046	27165	25345	23593	22065	20587	19163			
		≥ 90											
5 m	M 8	40	13553	13254	12961	12665	12366	12093	11817	11538	11283	11034	10765
		50	16941	16567	16201	15831	15457	15116	14771	14422	14104		
		60	20329	19880	19442	18997	18549						
		70	23717	23194				17965	16762	15603	14592	13647	12673
		80	25286	23649	22118	20636	19209						
		≥ 90											

1) Wheel loads at higher travel speeds on request

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4.3 Load capacity DWS 630

Linear contact
Travel wheel material: Spheroidal graphite cast iron material GJS-700-2 (GGG-70)
Rail material: E 360 (St 70-2), E 335 (St 60-2), S 355 J 2 G 3 (St 52-3)
Total skewing angle ≤ 2 $^{0}/_{00}$

Group of mechanisms		Useful rail head width [mm]	Permissible wheel loads [kg]										
FEM	ISO		Travel speed [m/min]										
			16	20	25	31,5	40	50	63	80	100	125	160 [1]
1 Bm	M 3	40	33990						32886	30612	28630	26776	24865
		50	42488						41108	38265	35787	33470	31081
		60	50985						49330	45918	42945	40164	37297
		70	59483						57551	53571	50102	46858	43513
		80	60000								57260	53552	49729
		90											55946
		≥ 100											
1 Am	M 4	40	33990			32886	30612	28630	26712	24865	23255	21749	20196
		50	42488			41108	38265	35787	33390	31081	29068	27186	25246
		60	50985			49330	45918	42945	40068	37297	34882	32623	30295
		70	59483			57551	53571	50102	46746	43513	40696	38061	35344
		80	60000					57260	53424	49729	46509	43498	40393
		90			60000					55946	52323	48935	45442
		≥ 100									57313	53602	49775
2 m	M 5	40	32731	30612	28630	26712	24865	23255	21697	20196	18889	17666	17049
		50	40914	38265	35787	33390	31081	29068	27121	25246	23611	22082	21312
		60	49097	45918	42945	40068	37297	34882	32545	30295	28333	26498	25574
		70	57280	53571	50102	46746	43513	40696	37970	35344	33055	30915	29836
		80	60000		57260	53424	49729	46509	43394	40393	37777	35331	34099
		90					55946	52323	48818	45442	42500	39748	38361
		≥ 100						57313	53474	49775	46552	43538	40430
3 m	M 6	40	26586	24865	23255	21697	20196	18889	17623	17049	16673	16305	15908
		50	33233	31081	29068	27121	25246	23611	22029	21312	20841	20382	19885
		60	39879	37297	34882	32545	30295	28333	26435	25574	25010	24458	23862
		70	46526	43513	40696	37970	35344	33055	30841	29836	29178	28534	27838
		80	53172	49729	46509	43394	40393	37777	35247	34099	33346	32611	31815
		90	59819	55946	52323	48818	45442	42500	39653	38361	37515	35364	32840
		≥ 100	60000		57313	53474	49775	46552	43434	40430	37812		
4 m	M 7	40	21595	20196	18889	17623	17049	16673	16292	15908	15557	15213	14842
		50	26993	25246	23611	22029	21312	20841	20365	19885	19446	19017	18553
		60	32392	30295	28333	26435	25574	25010	24438	23862	23335	22820	22264
		70	37791	35344	33055	30841	29836	29178	28511	27838	27224	26623	25974
		80	43189	40393	37777	35247	34099	33346	32585	31815	30859	28860	26800
		90	48588	45442	42500	39653	38361	37515	35447	32995			
		≥ 100	53474	50011	46773	43640	40622	37991					
5 m	M 8	40	17666	17090	16713	16331	15945	15594	15237	14878	14549	14228	13881
		50	22082	21362	20891	20414	19932	19492	19047	18597	18187	17785	17352
		60	26498	25635	25069	24496	23918	23390	22856	22316	21824	21342	20822
		70	30915	29907	29247	28579	27905	27289	26665	26036	25125	23498	21821
		80	35331	34180	33426	32662	31891	30932	28860	26864			
		90	39748	38452	37604	35531	33074						
		≥ 100	43538	40719	38082								

1) Wheel loads at higher travel speeds on request

4.4 Load capacity under non-standard conditions

The specified load capacity differs for
- other rail materials
- higher ambient temperatures
- point contact, convex/curved rail contour.

The smallest value R_{perm} (rail) calculated to 4.4.1 or R_{perm} (temperature) to 4.4.2 is the permissible load capacity under non-standard conditions.

4.4.1 Reduction in the case of other rail materials

$$R_{perm}\ (rail) = R_{perm} \cdot f_{St}$$

R_{perm} = permissible wheel load under standard conditions
- for linear contact acc. to tables 4.1 to 4.3
- for point contact on request

f_{St} = reduction factor for rail material with linear or point contact

	Material DIN EN 10025	Factor f_{St}	
		Linear contact	Point contact
Rail	E 360 (St 70-2)	1	on request
	E 335 (St 60-2)	1	
	S 355 J 2 G 3 (St 52-3)	1	
	S 235 J R (St 37-2)	0,25	

4.4.2 Reduction in the case of other ambient temperatures

$$R_{perm}\ (temperature) = R_{perm} \cdot f_{K}$$

R_{perm} = permissible wheel load under standard conditions
- for linear contact acc. to tables 4.1 to 4.3
- for point contact on request

f_K = reduction factor for other ambient temperatures

Temperature	– 20 °C to + 40 °C	to 50 °C	to 60 °C	to 70 C	to 80 °C	to 90 °C	to 100 °C	to 110 °C	to 120 °C	to 130 °C	to 140 °C	to 150 °C
DWS 400 - 630	1	1	0,92	0,90	0,88	0,86	0,84	0,82	0,80	a. A.	a. A.	a. A.

For temperatures of +70°C to +150°C a special lubricant must be used for the anti-friction bearings.

a. A. = On request

4.4.3 Horizontal forces

The max. permissible horizontal force which can be transferred by a wheel set is 15% of the actual wheel load.

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5 Drive assignment

Offset or angular geared motors as travel drives for DWS wheel sets are assigned in the following tables depending on the travelling weight per drive and the travel speed.

Assignment of the drives is based on indoor operation with max. 40 cycles per hour.

The travel drives have been calculated for inverter operation at a cut-off frequency of 50 Hz.

The following acceleration values apply:

Travel speed [m/min]	16	25	40	63	100	160
Perm. acceleration [m/s²]	0,1	0,15	0,2	0,2	0,3	0,35

Please refer to our Caldrive drive calculation program for assignment of the drives for inverter operation at other cut-off frequencies, e.g at 87 Hz or with mains operation.

Please note here the geometrically possible gearbox and wheel set combinations.

5.1 Wheel set assignment with offset geared motors

Drive assignment for offset gearboxes with ZBA motors with inverter operation at 50 Hz.
The standard speeds indicated are reached by setting the frequency.
In order to use the tables, the total load must be converted to the number of drives.

	DWS 400	V	16 m/min	25 m/min	40 m/min	63 m/min	100 m/min	160 m/min
	ADK 60	i =	107	77,2	48,8	31,8	19,5	12,9
	ADK 70	i =	117	78,9	49,2	30,9	19,4	
Travelling weight per drive [kg]	10000		19	20	11	12	15	17
	20000		20	22	13	14	17	18
	30000		21	23	14	15	32	
	40000		22	24	28	16	33	
	50000		23		29	30		
	60000			40		32		
	70000			41	30			
	80000		24					
	90000							
	100000			42				
	110000		40					
	120000							

	DWS 500	V	16 m/min	25 m/min	40 m/min	63 m/min	100 m/min	160 m/min
	ADK 70	i =	146	98,3	61,3	39,7	24,8	15,1
	ADK 80	i =	154	89,1	57,2	36	22,2	15,8
Travelling weight per drive [kg]	10000		35	37	25	26	28	29
	20000				26	27	30	32
	30000		36	38	27	28	32	
	40000				28	29	33	
	50000		37	39	29	30	51	
	60000		38	40		31	52	
	70000				47	32	53	
	80000			58				
	90000		56	59	48	50		
	100000				49			
	110000							
	120000							
	130000		57	60				
	140000							
	150000							
	160000		58					

	DWS 630	V	16 m/min	25 m/min	40 m/min	63 m/min	100 m/min	160 m/min
	ADK 80	i =	198	122	68,9	44,1	27,9	17,6
	ADK 90	i =	197	121	69,7	49,4	30,8	
Travelling weight per drive [kg]	10000		54	54	54	43	45	46
	20000				56	44	47	50
	30000			55	57	45	49	52
	40000				58	46	50	
	50000			56	59	47	51	
	60000			57			52	
	70000		55		60	49		
	80000			58			64	
	90000				61			
	100000		56		69	62		
	110000			66				
	120000					63		
	130000				70			
	140000		57					
	150000			67				
	160000							
	170000		65	68				
	180000							
	190000							
	200000							
	210000							
	220000		66					
	230000							
	240000							

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Drive combination	Gearbox	Motor	Output [kW]
11	ADK 60 DD	ZBA 90 A 4	1,1
12		ZBA 100 AL 4	2,2
13		ZBA 100 B 4	3
14		ZBA 112 A 4	4
15		ZBA 132 AL 4	5,5
16		ZBA 132 B 4	7,5
17		ZBA 132 C 4	9,5
18		ZBA 160 B 4	15
19	ADK 60 TD	ZBA 80 A 4	0,55
20		ZBA 80 B 4	0,75
21		ZBA 90 A 4	1,1
22		ZBA 90 B 4	1,5
23		ZBA 100 AL 4	2,2
24		ZBA 100 B 4	3
25	ADK 70 DD	ZBA 90 B 4	1,5
26		ZBA 100 AL 4	2,2
27		ZBA 112 A 4	4
28		ZBA 132 AL 4	5,5
29		ZBA 132 B 4	7,5
30		ZBA 132 C 4	9,5
31		ZBA 160 AL 4	11
32		ZBA 160 B 4	15
33		ZBA 180 A 4	18,5
35	ADK 70 TD	ZBA 80 A 4	0,55
36		ZBA 90 A 4	1,1
37		ZBA 90 B 4	1,5
38		ZBA 100 AL 4	2,2
39		ZBA 100 B 4	3
40		ZBA 112 A 4	4
41		ZBA 132 AL 4	5,5
42		ZBA 132 B 4	7,5
43	ADK 80 DD	ZBA 100 AL 4	2,2
44		ZBA 112 A 4	4
45		ZBA 132 AL 4	5,5
46		ZBA 132 B 4	7,5
47		ZBA 132 C 4	9,5
48		ZBA 160 AL 4	11
49		ZBA 160 B 4	15
50		ZBA 180 A 4	18,5
51		ZBA 180 B 4	22
52		ZBA 200 A 4	30
53		ZBA 225 AL 4	37
54	ADK 80 TD	ZBA 90 B 4	1,5
55		ZBA 100 AL 4	2,2
56		ZBA 100 B 4	3
57		ZBA 112 A 4	4
58		ZBA 132 AL 4	5,5
59		ZBA 132 B 4	7,5
60		ZBA 132 C 4	9,5
61		ZBA 160 AL 4	11
62	AUK 90 DD	ZBA 180 A 4	18,5
63		ZBA 180 B 4	22
64		ZBA 225 AL 4	37
65	AUK 90 TD	ZBA 132 AL 4	5,5
66		ZBA 132 B 4	7,5
67		ZBA 132 C 4	9,5
68		ZBA 160 AL 4	11
69		ZBA 160 B 4	15
70		ZBA 180 A 4	18,5

5.2 Wheel set assignment with angular geared motors

Drive assignment for angular gearboxes with ZBA motors with inverter operation at 50 Hz.
The standard speeds indicated are reached by setting the frequency.
In order to use the tables, the total load must be converted to the number of drives.

	DWS 400	V	16 m/min	25 m/min	40 m/min	63 m/min	100 m/min	160 m/min
	WUK 70	i =	113	73	51,3	32,2	19,8	13,7
	WUK 80	i =	113	73	51,1	32,1	19,8	
Travelling weight per drive [kg]	10000		22	11	12	14	17	19
	20000		23	13	15	16	19	20
	30000		24	14	16	17	20	21
	40000		25	15	17	18	36	
	50000		26		32	33	37	
	60000			16		35		
	70000			17	33			
	80000		29					
	90000							
	100000			18				
	110000		30					
	120000							

	DWS 500	V	16 m/min	25 m/min	40 m/min	63 m/min	100 m/min	160 m/min
	WUK 80	i =	161	101	65,8	41	24,9	15,3
	WUK 90	i =	158	100 (*92,3)	64,1 (*58)	40,5	22	
Travelling weight per drive [kg]	10000		38	27	27	28	31	32
	20000				28	30	33	35
	30000		39	28	30	31	35	37
	40000				31	32	36	
	50000		40	29		33	53	
	60000			30	32	34	54	
	70000		41		49	51	55	
	80000			47				
	90000		42		50	52		
	100000			48				
	110000				51*			
	120000							
	130000		60					
	140000			49*				
	150000							
	160000		61					

	DWS 630	V	16 m/min	25 m/min	40 m/min	63 m/min	100 m/min	160 m/min
	WUK 90	i =	204	126	71,2	45 (*55,2)	28,4	19,8
	WUK 100	i =	190	121	70,4	49,7	28,1	
Travelling weight per drive [kg]	10000		56	56	43	44	47	48
	20000				45	46	49	51
	30000			58	46	47*	51	54
	40000				47	48*	52	
	50000		57	59	48	49*	53	
	60000			60			54	
	70000		58		49	51*		
	80000			61			55	
	90000				50			
	100000		59		62	63		
	110000			67				
	120000					64		
	130000				63			
	140000		60	68				
	150000							
	160000							
	170000		66	69				
	180000							
	190000							
	200000							
	210000							
	220000		67					
	230000							
	240000							

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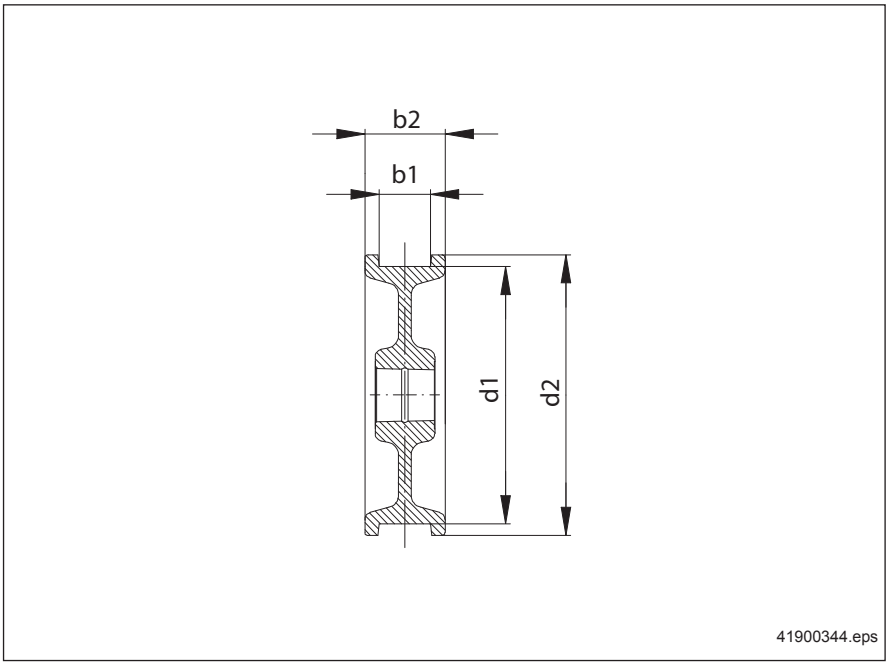
Drive combination	Gearbox	Motor	Output [kW]
11	**WUK 70 TD**	ZBA 80 B 4	0,75
12		ZBA 90 A 4	1,1
13		ZBA 90 B 4	1,5
14		ZBA 100 AL 4	2,2
15		ZBA 100 B 4	3
16		ZBA 112 A 4	4
17		ZBA 132 AL 4	5,5
18		ZBA 132 B 4	7,5
19		ZBA 132 C 4	9,5
20		ZBA 160 B 4	15
21		ZBA 180 B 4	22
22	**WUK 70 QD**	ZBA 80 A 4	0,55
23		ZBA 80 B 4	0,75
24		ZBA 90 A 4	1,1
25		ZBA 90 B 4	1,5
26		ZBA 100 AL 4	2,2
27	**WUK 80 TD**	ZBA 90 B 4	1,5
28		ZBA 100 AL 4	2,2
29		ZBA 100 B 4	3
30		ZBA 112 A 4	4
31		ZBA 132 AL 4	5,5
32		ZBA 132 B 4	7,5
33		ZBA 132 C 4	9,5
34		ZBA 160 AL 4	11
35		ZBA 160 B 4	15
36		ZBA 180 A 4	18,5
37		ZBA 180 B 4	22
38	**WUK 80 QD**	ZBA 80 A 4	0,55
39		ZBA 90 A 4	1,1
40		ZBA 90 B 4	1,5
41		ZBA 100 AL 4	2,2
42		ZBA 100 B 4	3
43	**WUK 90 TD**	ZBA 90 B 4	1,5
44		ZBA 100 AL 4	2,2
45		ZBA 100 B 4	3
46		ZBA 112 A 4	4
47		ZBA 132 AL 4	5,5
48		ZBA 132 B 4	7,5
49		ZBA 132 C 4	9,5
50		ZBA 160 AL 4	11
51		ZBA 160 B 4	15
52		ZBA 180 A 4	18,5
53		ZBA 180 B 4	22
54		ZBA 200 A 4	30
55		ZBA 225 AL 4	37
56	**WUK 90 QD**	ZBA 90 A 4	1,1
57		ZBA 90 B 4	1,5
58		ZBA 100 AL 4	2,2
59		ZBA 100 B 4	3
60		ZBA 112 A 4	4
61		ZBA 132 AL 4	5,5
62	**WUK 100 TD**	ZBA 160 B 4	15
63		ZBA 180 A 4	18,5
64		ZBA 180 B 4	22
65		ZBA 225 AL 4	37
66	**WUK 100 QD**	ZBA 132 AL 4	5,5
67		ZBA 132 B 4	7,5
68		ZBA 132 C 4	9,5
69		ZBA 160 AL 4	11

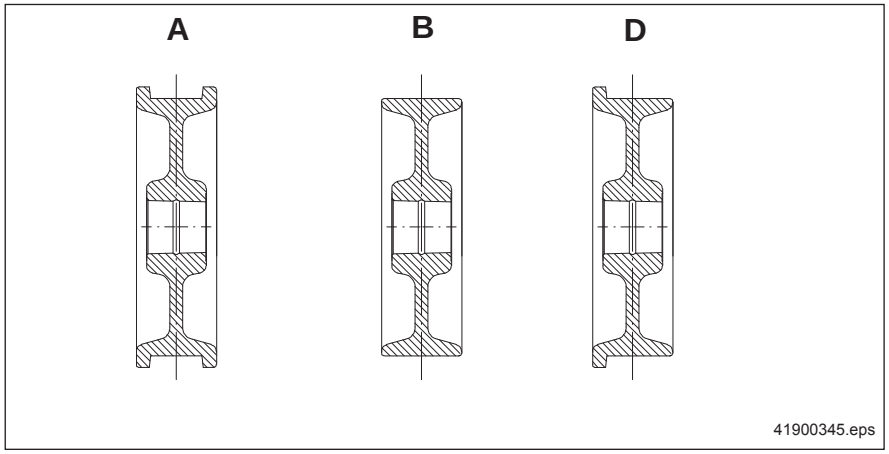
6 Dimensions

6.1 Travel wheel



Wheel set	Dimensions [mm]					
	d1	d2	b2	b1 [1]	b1 [2] (R75)	b1 [3] (R76)
DWS 400	400	437	125	80	81 to 90	50 to 79
			140	90	91 to 105	78 to 89
DWS 500	500	537	140	90	91 to 100	50 to 89
			170	110	111 to 130	104 to 109
DWS 630	630	680	140	75	76 to 95	-
			170	110	111 to 125	-

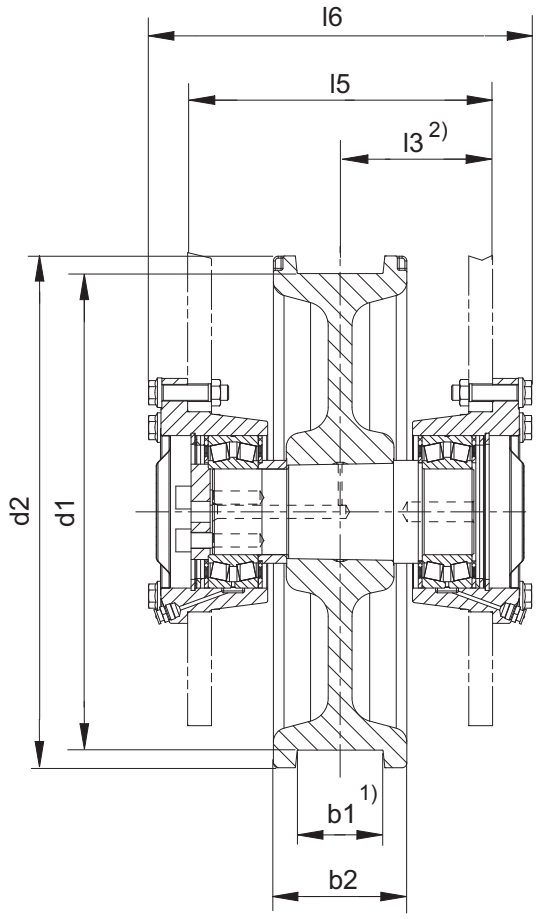
In addition to the standard wheel tread with two flanges (A), wheels with no flanges (B) or wheels with only one flange (D) are also available as options at extra cost. Travel wheels with no flanges or wheels with only one flange are available in the small variant.



1) Standard travel wheel tread
2) Possible travel wheel tread, re-machining of the flanges, at extra cost
3) Possible travel wheel tread, from standard unmachined part, at extra cost

6.2 Non-driven DWS, with flange bearing

(previous designation: RNE)



Wheel set	d1	d2	b2	b1 1)	l3 2)	l5 +1	l6	DWS Previous part No. 3) 4) (RNE)	DWS Weight [kg]
DWS 400 A80/125 F NA	400	437	125	80	140 ± 10	280	362	807 118 46	116
DWS 400 A90/140 F NA			140	90				807 218 46	120
DWS 500 A90/140 F NA	500	537	140	90	160 ± 10	320	402	807 123 46	151
DWS 500 A110/170 F NA			170	110				807 223 46	166
DWS 630 A75/140 F NA	630	680	140	75	175 ± 12	350	456	807 147 46	295
DWS 630 A110/170 F NA			170	110				807 149 46	310

1) Standard tread given, see section 6.1 for further possible wheel treads.

2) Span can be modified by distance washers.

3) Previous part numbers include centring pins (option R62) and bolted connection for corner-bearing installation (option R60) as well as paint finish with 1-layer top coat (R82) and long-term preservative for bare surfaces (R89); not included in the basic price.

4) DWS wheel set should be preferably ordered using the mounting code and not the previous part numbers.

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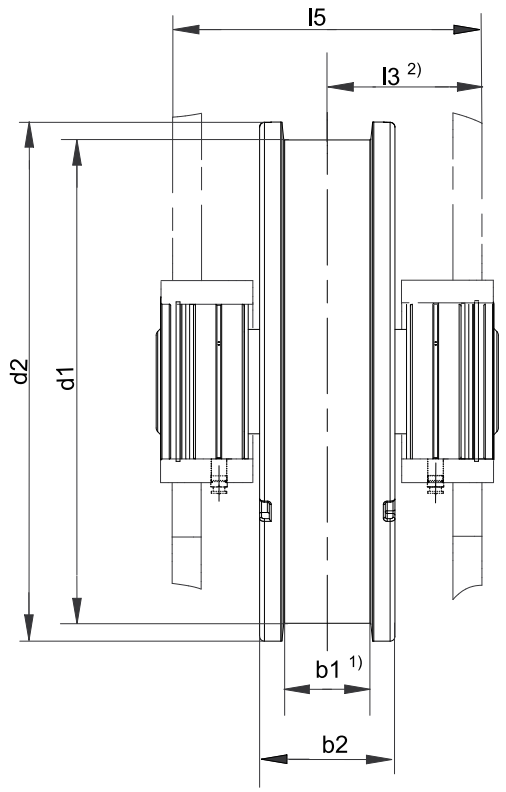
6.3 Non-driven DWS, without flange bearing



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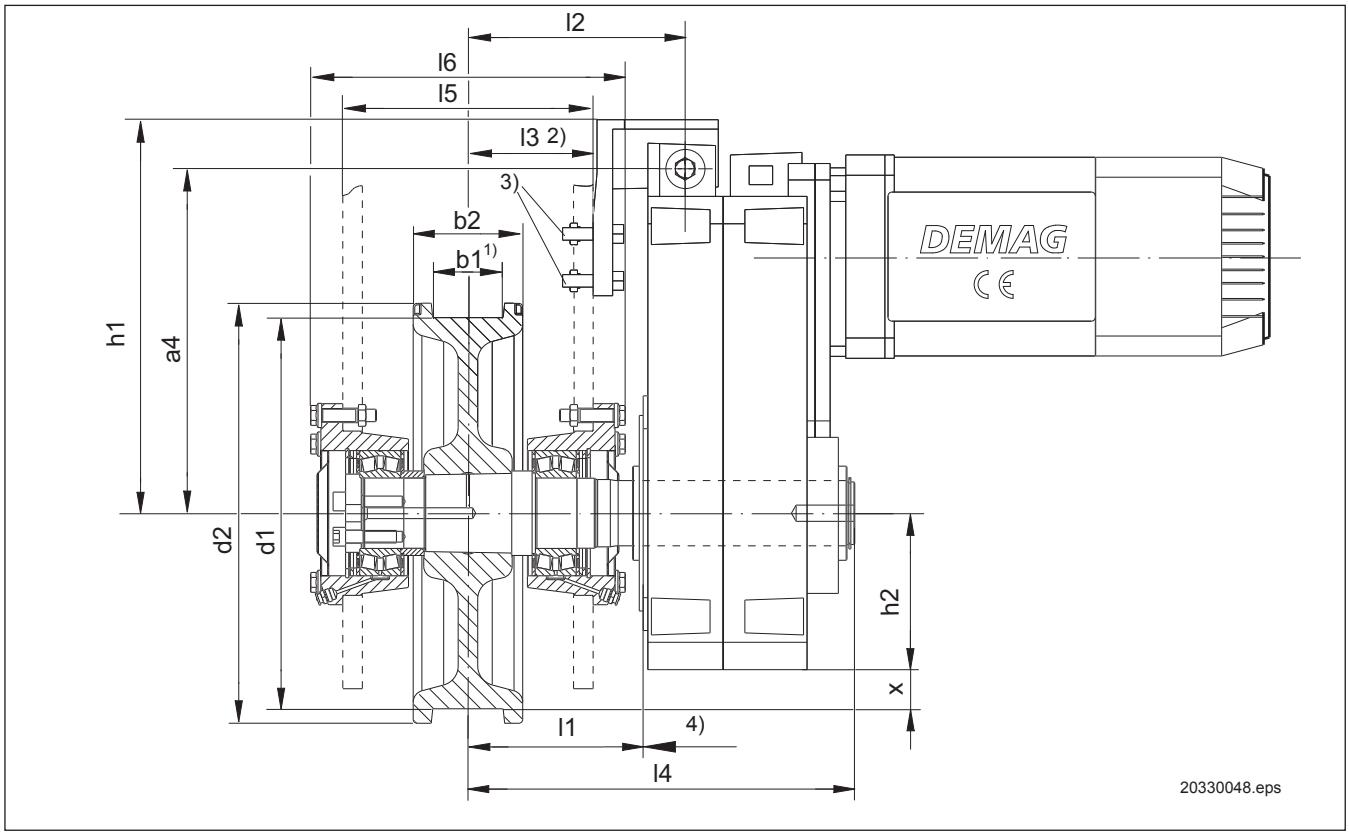
Wheel set	d1	d2	b2	b1 1)	l3 2)	l5 +1	DWS	
								Weight [kg]
DWS 400 A80/125 D NA	400	437	125	80	140 ± 10	280		86
DWS 400 A90/140 D NA			140	90				90
DWS 500 A90/140 D NA	500	537	140	90	160 ± 10	320		121
DWS 500 A110/170 D NA			170	110				136
DWS 630 A75/140 D NA	630	680	140	75	175 ± 12	350		273
DWS 630 A110/170 D NA			170	110				255

1) Standard tread given, see section 6.1 for further possible wheel treads.
2) Span can be modified by distance washers.

6.4 Driven DWS wheel set, with ADK / AUK offset gearbox and D2 torque bracket

(previous designation: RAE)



Wheel set	d1	d2	b2	b1 1)	l1	l2	l3 2)	l4	l5 +1	l6	x	h1	h2	a4	DWS Previous part No. 6) 5) RAE	DWS Weight [kg]	DWS Shaft profile	DWS for gearbox
DWS 400 A80/125 F EA A60/K65	400	437	125	80	216	263	140 ± 10	397,5	280	362	60	372	140	309	807 119 46	124	W65	ADK 60
DWS 400 A80/125 F EA A70/K75					208	260		441			35	429	165	366	807 143 46	127	W75	ADK 70
DWS 400 A90/140 F EA A60/K65			140	90	216	263		397,5			60	372	140	309	807 219 46	128	W65	ADK 60
DWS 400 A90/140 F EA A70/K75					208	260		441			35	429	165	366	807 220 46	131	W75	ADK 70
DWS 500 A90/140 F EA A70/K75	500	537	140	90	228	280	160 ± 10	461	320	402	85	429	165	366	807 144 46	166	W75	ADK 70
DWS 500 A90/140 F EA A80/K90					224	278		494,5			50	503	200	440	807 145 46	169	W90	ADK 80
DWS 500 A110/170 F EA A70/K75			170	110	228	280		461			85	429	165	366	807 224 46	181	W75	ADK 70
DWS 500 A110/170 F EA A80/K90					224	278		494,5			50	503	200	440	807 225 46	194	W90	ADK 80
DWS 630 A75/140 F EA A80/K90	630	680	140	75	241,5	295	175 ± 12	509,5	350	456	115	503	200	440	807 156 46	313	W90	ADK 80
DWS 630 A75/140 F EA A90/K110					273	339		582			75	590	240	520	807 146 46	326	W110	AUK 90
DWS 630 A110/170 F EA A80/K90			170	110	241,5	295		509,5			115	503	200	440	807 157 46	328	W90	ADK 80
DWS 630 A110/170 F EA A90/K110					273	339		582			75	590	240	520	807 148 46	341	W110	AUK 90

1) Standard tread given, see section 6.1 for further possible wheel treads.

2) Span can be modified by distance washers.

3) Nuts and bolts with special strength properties included in the scope of delivery for the D2 torque bracket. See section 6.6 for dimensions, bore hole template, quantity and torque.

4) See section 6.7 for further gearbox dimensions.

5) Previous part numbers include centring pins (option R62) and bolted connection for corner-bearing installation (option R60) as well as paint finish with 1-layer top coat (R82) and long-term preservative for bare surfaces (R89); not included in the basic price.

6) DWS wheel set should be preferably ordered using the mounting code and not the previous part numbers.

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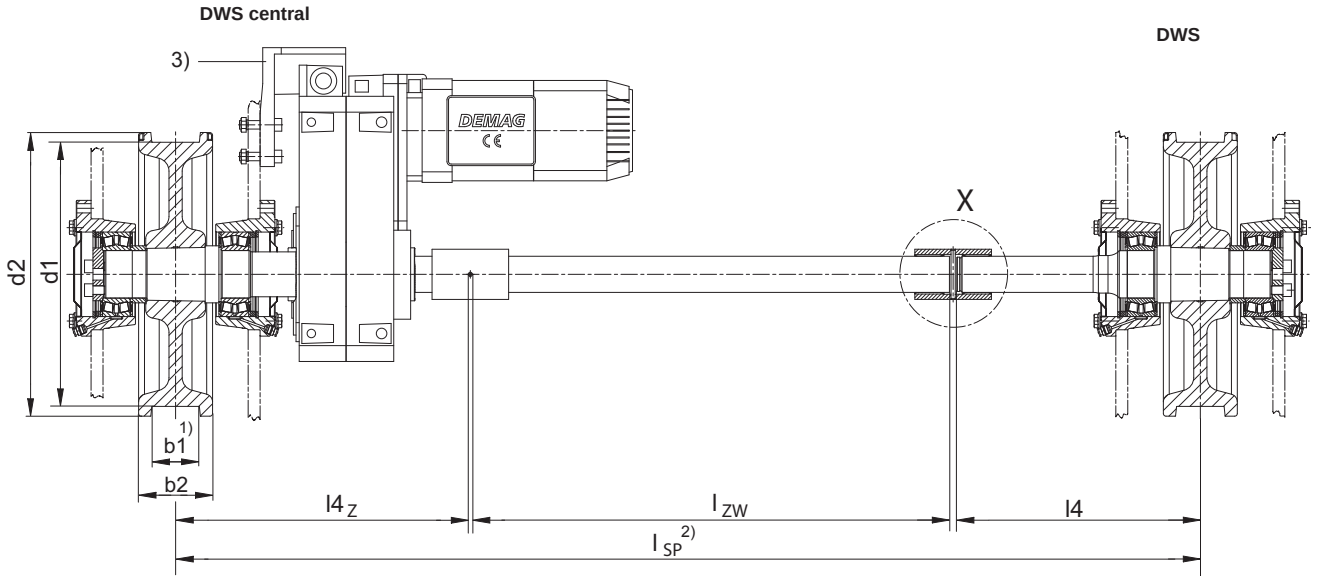
6.5 Driven DWS wheel set, central drive unit with ADK offset gearbox and D2 torque bracket

(previous designation: RAE central)



Wheel set (ZI)	d1	d2	b2	b1 [1]	Shaft-profile	for Gearbox	DWS central: Previous part No. [4] [5] RAE central	DWS central: Weight [kg]	DWS central: l4Z	DWS: Previous part No. [4] [5] RAE	DWS: Weight [kg]	DWS: l4
DWS 400 A80/125 F ZI A70/K75	400	437	125	80	W75	ADK 70	807 152 46	130	536	807 143 46	127	441
DWS 400 A90/140 F ZI A70/K75			140	90	W75	ADK 70	807 221 46	134	536	807 220 46	131	441
DWS 500 A90/140 F ZI A80/K90	500	537	140	90	W90	ADK 80	807 153 46	174	597,5	807 145 46	169	494,5
DWS 500 A110/170 F ZI A80/K90			170	110	W90	ADK 80	807 226 46	189	597,5	807 225 46	194	494,5
DWS 630	630	680	140	75	–	–	none			–	–	–
DWS 630			170	110	–	–	none			–	–	–

1) Standard tread given, see section 6.1 for further possible wheel treads.

2) Span can be modified by distance washers.

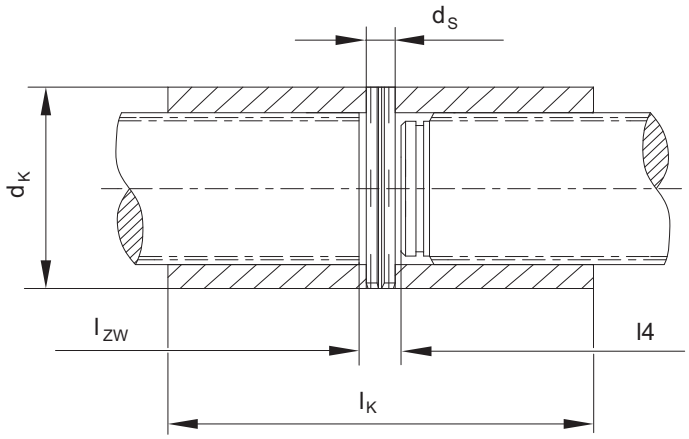
3) Nuts and bolts with special strength properties included in the scope of delivery for the D2 torque bracket. See section 6.6 for dimensions, bore hole template, quantity and torque.

4) Previous part numbers include centring pins (option R62) and bolted connection for corner-bearing installation (option R60) as well as paint finish with 1-layer top coat (R82) and long-term preservative for bare surfaces (R89); not included in the basic price.

5) DWS wheel set should be preferably ordered using the mounting code and not the previous part numbers.

Intermediate shaft and shaft coupling

Detail X
Shaft coupling



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Wheel set	Shaft profile	for gearbox	Intermediate shaft [1]				Coupling				
			l_{SP}	l_{ZW}	Part No.	Weight [kg]	l_K	d_K	d_S	Part No.	Weight [kg]
DWS 400	W75	ADK 70	≤1500	500	752 870 44	15,7	145	95	8	752 952 44	3,4
			≤2740	1740	752 874 44	55,0					
			≤3300	2300	752 876 44	72,5					
DWS 500	W90	ADK 80	≤1515	400	752 880 44	18,4	170	115	8	752 954 44	6,0
			≤2755	1640	752 884 44	75,4					
			≤3315	2200	752 886 44	101,2					
DWS 630	–	–	–	–	–	–	–	–	–	–	–
			–	–	–	–					
			–	–	–	–					

1) Shorten intermediate shaft to required length for actual span dimension. $l_{ZW} = l_{SP}-(l4+l4_Z+23)$

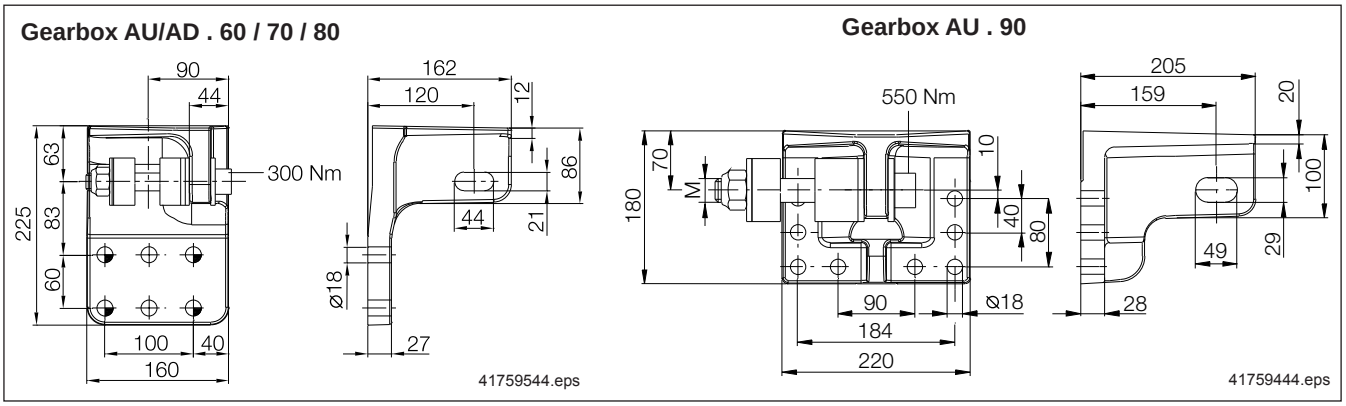
20368844_en_010411

6.6 D2 torque bracket for fitting AUK / ADK offset gearboxes

The torque bracket features an arm with a slot and is connected by means of a bolted vibration-damping arrangement to a slot cast into the gearbox housing.

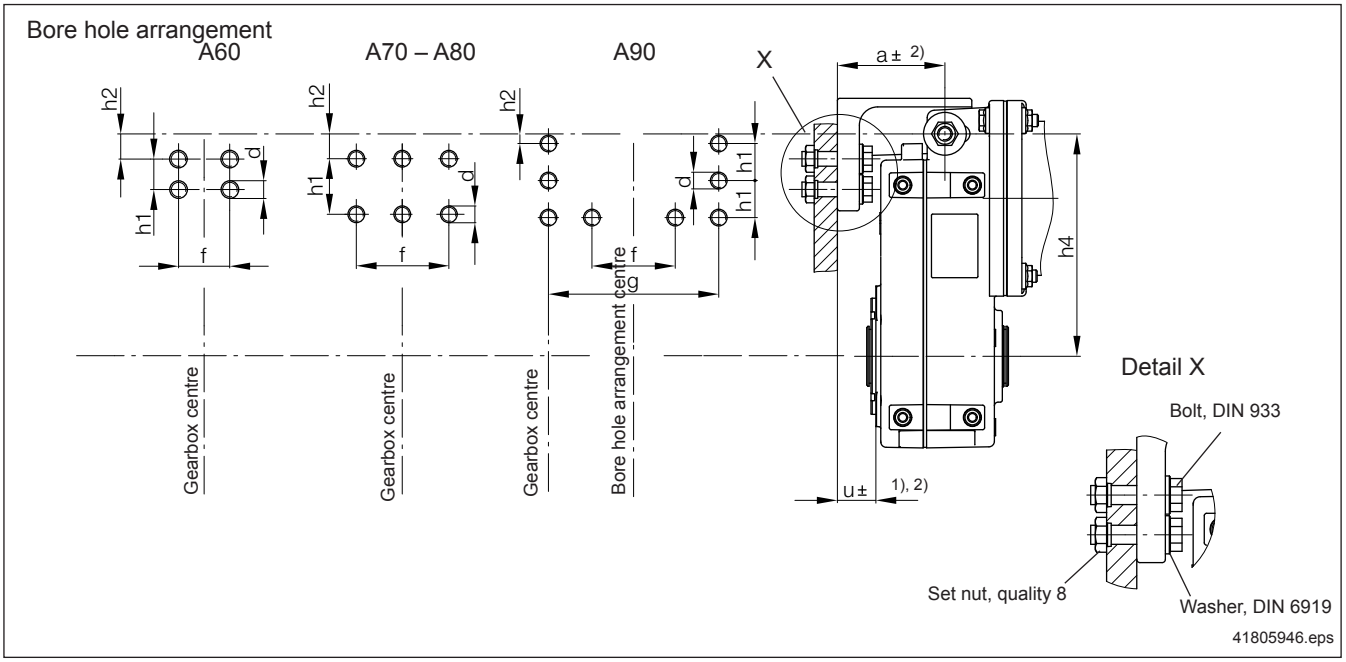
The paint finish thickness between the torque bracket and connecting surface should not exceed 60 µm.

D2 torque bracket



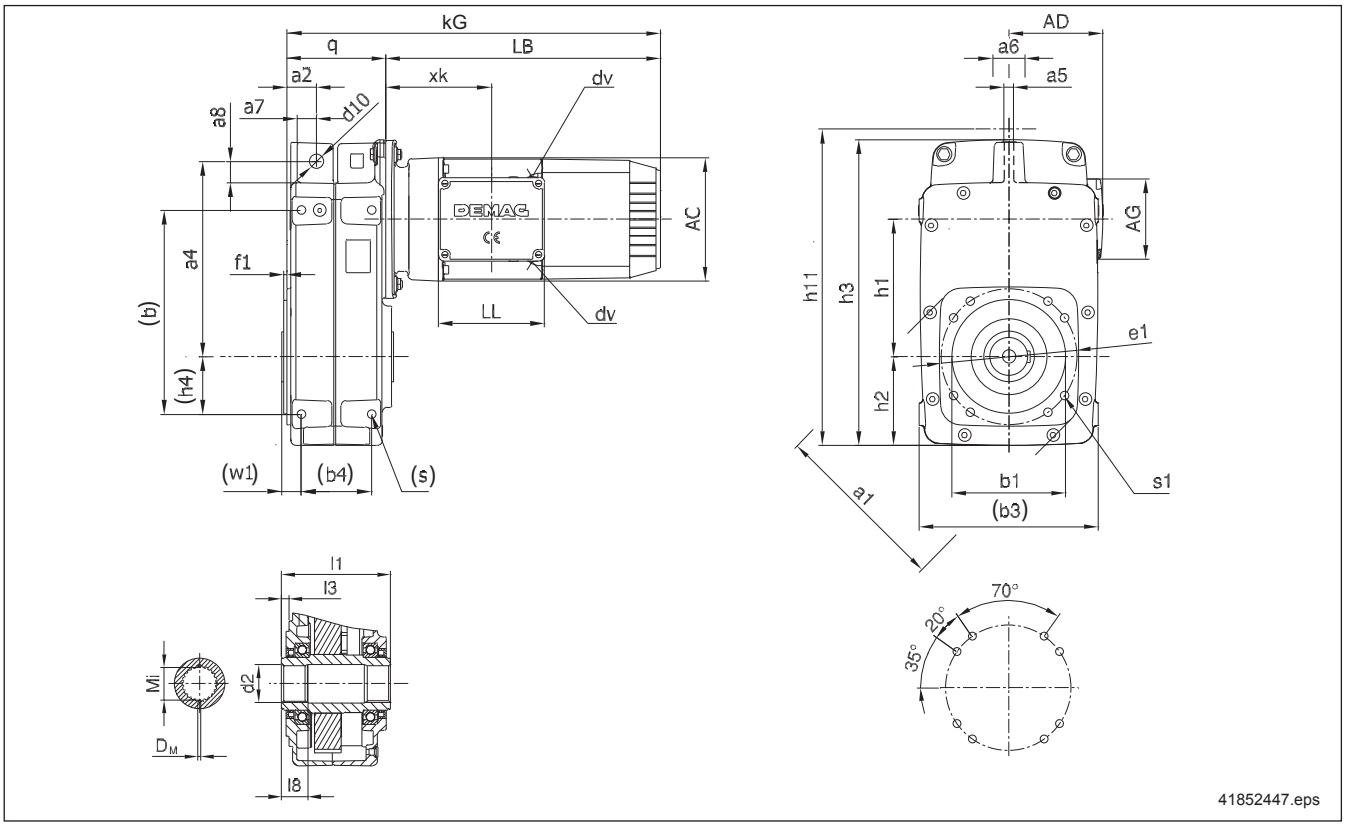
Gearbox	D2 torque bracket	Connecting bolt quality 10.9			Supporting bolt		Bore hole template						For wheel set	a 1), 2)	u 1), 2)	Weight [kg]
		Size	Qty	Tightening torque [Nm]	Size	Tightening torque [Nm]	d H11	f ±0,3	g	h1	h2	h4				
A 60	787 989 44	M16	4	300	M20 x 150	300	18	100	–	60	83	309	DWS 400	60-75	108-123	10,8
A 70	787 990 44		6									366	DWS 400	58-68	110-120	11,1
													DWS 500	63-68	115-120	
A 80	787 991 44											440	DWS 500	56-66	110-120	11,3
													DWS 630	64-66	118-120	
A 90	787 995 44		8		M24 x 220	550		90	184	40	10	520	DWS 630	83-98	159-164	16,0

D2 torque bracket connection dimensions



1) To flange contact surface
2) Tolerance due to torque bracket slot

6.7 Offset geared motors
Universal / torque bracket type AUK / ADK



Gearbox	dimensions [mm]																					
	a1	a2	a4	a5	a6	a7	a8	(b)	(b1) j6	b3	b4	d10	e1	f1	h1	h2	h3	(h4)	q	s	s1	w1
AU / AD 60	280	47,0	309	25	51,5	30,0	34,0	323	180	284	111	22	215	5	218	140	484	91	157,5	M16x21	M16x21	36
AU / AD 70	324	51,5	366	32	65,0	30,5	29,0	400	230	340	133	22	265	5	272	165	561	112	193,5	M20x32	M16x21	44
AU / AD 80	382	53,5	440	32	71,0	32,6	35,0	499	250	416	151	22	300	5	328	200	674	132	220,0	M24x36	M20x30	46
AU 90	445	66,0	520	40	94,0	40,0	39,5	580	300	500	172	26	350	5	395	240	804	160	246,5	M30x50	M20x35	64

Values in ( ): machining for housing type AU, not for AD

20368744_001

Gearbox	WK 1)	Gearbox output shaft dimensions [mm]					
		d2 DIN 5480	l1	l3	l8	M_i	D_M
AUK / ADK 60	K 65	N65 x 2 x 31	187	13,0	40	57,675 +0,045	3,50
AUK / ADK 70	K 75	N75 x 3 x 24	240	15,0	45	63,962 +0,050	5,25
AUK / ADK 80	K 90	N90 x 3 x 28	274	13,5	45	79,136 +0,042	5,25
AUK 90	K 110	N110 x 3 x 35	332	27,0	55	99,080 +0,049	5,25

20368744_002

Dimensions [mm]	Motor					
	ZB. 80 / 90A	ZB. 90B / 100	ZB. 112 / 132	ZB. 160 / 180A	ZB. 180B / 200	ZB. 225
AC	157	196	260	314	394	440
AD	134	152	185	269	311	332
dv	4xM25	2xM25	2xM32	2xM40	2xM40	2xM40
(M.. X 1,5)		2xM32	2xM40	2xM50	2xM50	2xM50
LL	153	168	273	273	273	273
AG	103	133	173	173	173	173

20368744_003

1) WK: shaft code

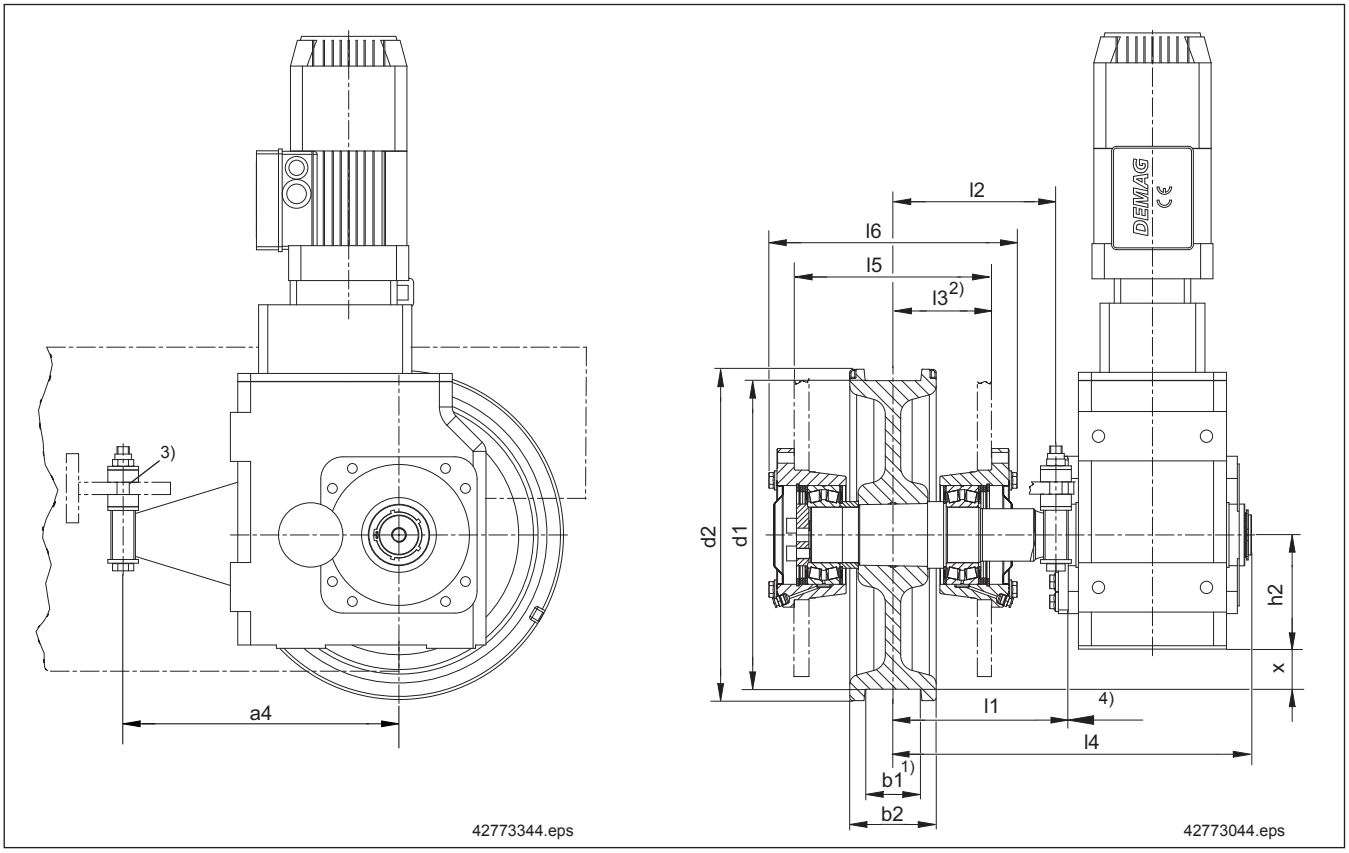
Gearbox	2/3-stage DD/TD dimensions [mm]	Motor					
		ZB. 80 / 90A	ZB. 90B / 100	ZB. 112 / 132	ZB. 160 / 180A	ZB. 180B / 200	ZB. 225
AUK 60 ADK 60	kG	554	596	738	845	–	–
	LB	397	439	581	687	–	–
	xk	155	167	222	236	–	–
	$h11_{max}$	484	484	488	515	–	–
AUK 70 ADK 70	kG	599	641	783	890	–	–
	LB	406	448	590	696	–	–
	xk	164	176	231	245	–	–
	$h11_{max}$	561	561	567	594	–	–
AUK 80 ADK 80	kG	621	663	805	911	1038	1085
	LB	401	443	585	691	818	865
	xk	159	171	226	240	249	259
	$h11_{max}$	674	674	674	685	725	748
AUK 90	kG	–	686	828	935	1061	1108
	LB	–	440	582	688	815	862
	xk	–	168	223	237	246	256
	$h11_{max}$	–	804	804	804	832	855

20368744_004

For dimensions of geared motors with coupling connection and KB or Z motors,
see geared motor catalogue 203 151 44 or DriveDesigner online at: www.demag-drivedesigner.com

6.8 Driven DWS wheel set with angular WUK gearbox and arm 2 torque bracket

(previous designation: RAE)



Wheel set	d1	d2	b2	b1 [1]	l1	l2	l3 [2]	l4	l5 +1	l6	x	h2	a4	DWS Previous part No. [6] [5] RAE	DWS Weight [kg]	DWS Shaft profile	DWS for gearbox
DWS 400 A80/125 F EA W70/K65	400	437	125	80	229	203	140±10	520	280	362	70	130	450	807 230 46	127	W65	WUK 70
DWS 400 A80/125 F EA W80/K75					238	218		533			15	185	450	807 232 46	130	W75	WUK 80
DWS 400 A90/140 F EA W70/K65			140	90	229	203		520			70	130	450	807 231 46	131	W65	WUK 70
DWS 400 A90/140 F EA W80/K75					238	218		533			15	185	450	807 233 46	134	W75	WUK 80
DWS 500 A90/140 F EA W80/K75	500	537	140	90	285	266	160±10	581	320	402	65	185	450	807 236 46	170	W75	WUK 80
DWS 500 A90/140 F EA W90/K90					257	248,5		588,5			45	205	450	807 238 46	183	W90	WUK 90
DWS 500 A110/170 F EA W80/K75			170	110	285	266		581			65	185	450	807 237 46	185	W75	WUK 80
DWS 500 A110/170 F EA W90/K90					257	248,5		588,5			45	205	450	807 239 46	190	W90	WUK 90
DWS 630 A75/140 F EA W90/K90	630	680	140	75	285,5	277	175±12	617	350	456	110	205	450	807 242 46	317	W90	WUK 90
DWS 630 A75/140 F EA W100/K110					344,5	335		753			55	260	500	807 244 46	333	W110	WUK 100
DWS 630 A110/170 F EA W90/K90			170	110	285,5	277		617			110	205	450	807 243 46	332	W90	WUK 90
DWS 630 A110/170 F EA W100/K110					301,5	292		710			55	260	500	807 245 46	348	W110	WUK 100

1) Standard tread given, see section 6.1 for further possible wheel treads.

2) Span can be modified by distance washers.

3) Nuts and bolts with special strength properties included in the scope of delivery for the arm 2 torque bracket. See section 6.10 for dimensions, bore hole template, quantity and torque

4) See section 6.11 for further gearbox dimensions.

5) Previous part numbers include centring pins (option R62) and bolted connection for corner-bearing installation (option R60) as well as paint finish with 1-layer top coat (R82) and long-term preservative for bare surfaces (R89); not included in the basic price.

6) DWS wheel set should be preferably ordered using the mounting code and not the previous part numbers.

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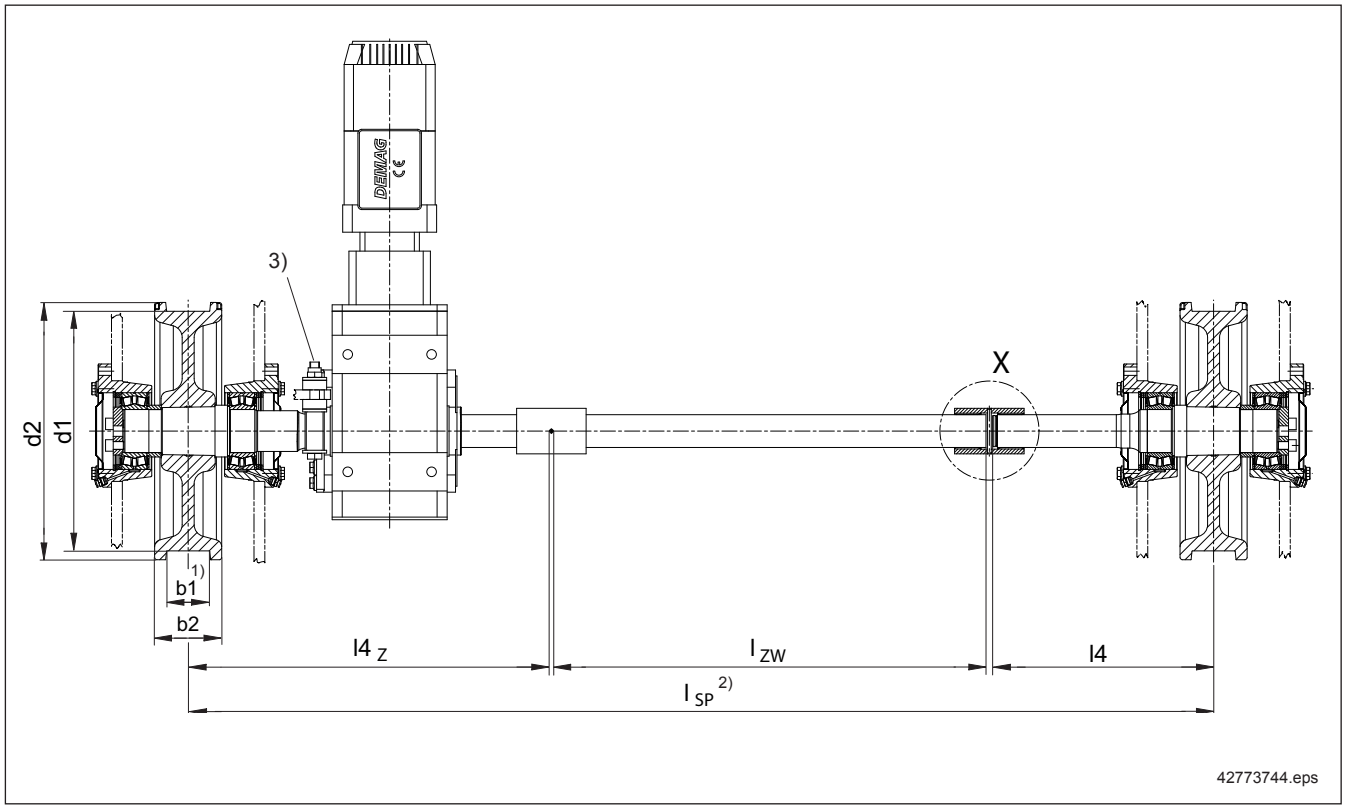
6.9 Driven DWS wheel set central drive with angular WUK gearbox and arm 2 torque bracket

(previous designation: RAE central)



Wheel set (ZI)	d1	d2	b2	b1 1)	Shaft-profile	for Gearbox	DWS central Previous part No. 4) 5) RAE central	DWS central Weight [kg]	DWS central $l4_Z$	DWS Previous part No. 4) 5) RAE	DWS Weight [kg]	DWS l4
DWS 400 A80/125 F ZI W80/K75	400	437	125	80	W75	WUK 80	807 234 46	133	619	807 232 46	130	533
DWS 400 A90/140 F ZI W80/K75			140	90	W75	WUK 80	807 235 46	137	619	807 233 46	134	533
DWS 500 A90/140 F ZI W90/K90	500	537	140	90	W90	WUK 90	807 240 46	178	688,5	807 238 46	173	588,5
DWS 500 A110/170 F ZI W90/K90			170	110	W90	WUK 90	807 241 46	195	688,5	807 239 46	190	588,5
DWS 630	630	680	140	75	–	–	none			–	–	–
DWS 630			170	110	–	–	none			–	–	–

1) Standard tread given, see section 6.1 for further possible wheel treads.

2) Span can be modified by distance washers.

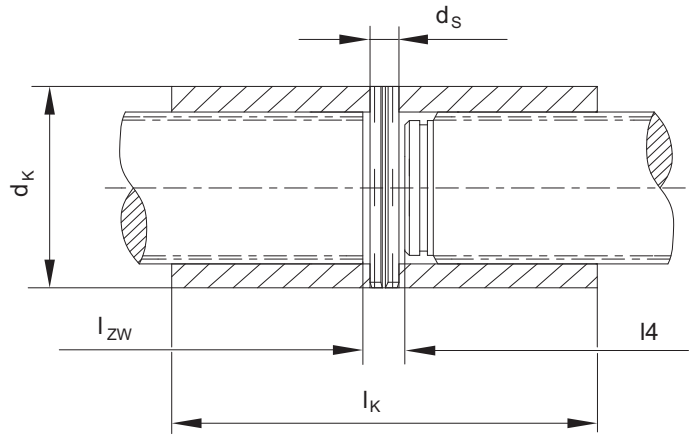
3) Nuts and bolts with special strength properties included in the scope of delivery for the arm 2 torque bracket. See section 6.10 for dimensions, bore hole template, quantity and torque

4) Previous part numbers include centring pins (option R62) and bolted connection for corner-bearing installation (option R60) as well as paint finish with 1-layer top coat (R82) and long-term preservative for bare surfaces (R89); not included in the basic price.

5) DWS wheel set should be preferably ordered using the mounting code and not the previous part numbers.

Intermediate shaft and shaft coupling

Detail X
Shaft coupling



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Wheel set	Shaft profile	for gearbox	Intermediate shaft [1] l_{SP}	l_{ZW}	Part No.	Weight [kg]	Coupling l_K	d_K	d_S	Part No.	Weight [kg]
DWS 400	W75	WUK 80	≤1672	500	752 870 44	15,7	145	95	8	752 952 44	3,4
			≤2912	1740	752 874 44	55,0					
			≤3472	2300	752 876 44	72,5					
DWS 500	W90	WUK 90	≤1697	400	752 880 44	18,4	170	115	8	752 954 44	6,0
			≤2937	1640	752 884 44	75,4					
			≤3497	2200	752 886 44	101,2					
DWS 630	–	–	–	–	–	–	–	–	–	–	–
			–	–	–	–					
			–	–	–	–					

1) Shorten intermediate shaft to required length for actual span dimension. $l_{ZW} = l_{SP}-(l4+l4_Z+23)$

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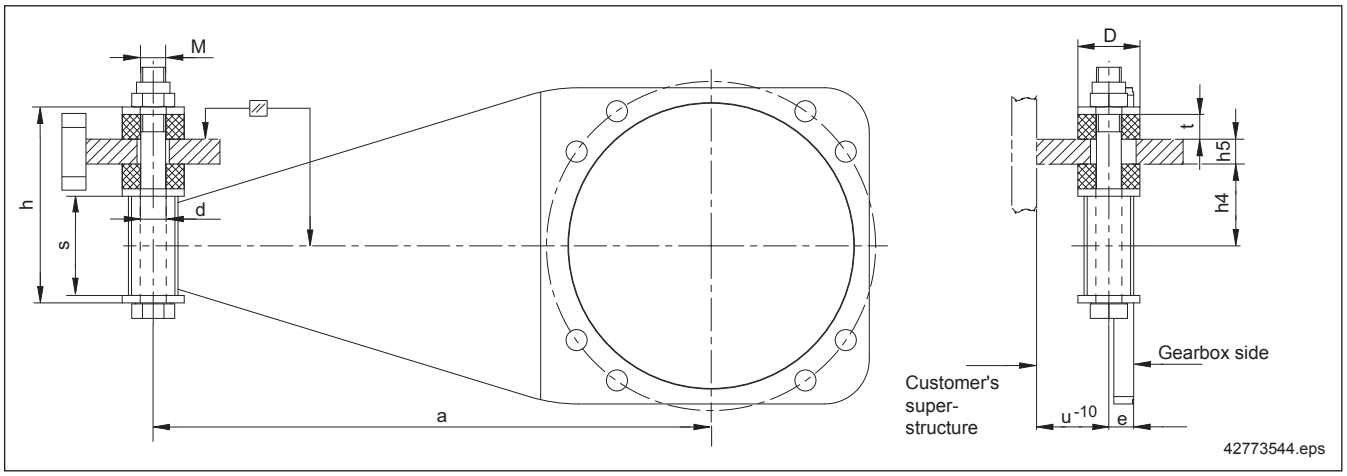
6.10 Arm 2 torque bracket for fitting angular WUK gearboxes

The torque bracket is designed in the form of an arm and is bolted to the machined flange surface of the gearbox housing on the gearbox side.

The arm is attached to the superstructure by means of a vibration-damping arrangement. We recommend the use of a slotted bracket as shown in the diagram for connection to the customer's superstructure.

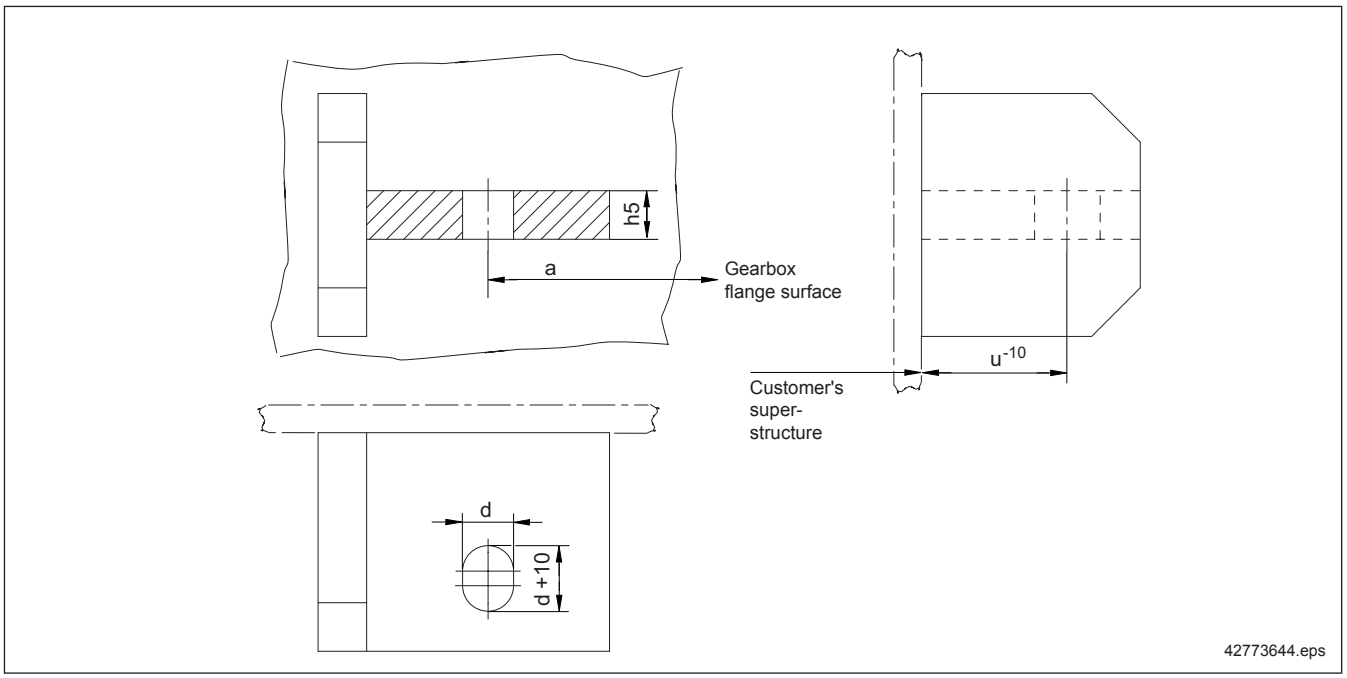
Arm 2 torque bracket



Gearbox	Arm 2 torque bracket [1]	Torque bracket bolt		Dimensions [mm]						For wheel set	u -10	Damping element			Weight [kg]
		M	Torque [Nm]	a ± 0,5	h	h4	h5	s	e			D	d	t	
W 70	578 602 46	M20 x 190	300	450	158	66	20	80	26	DWS 400	63	50	21	20	10,2
W 80	578 603 46								19	DWS 400	78				11,3
										DWS 500	106				
W 90	578 604 46	M30 x 260	720		210	91			8,5	DWS 500	88	60	33	43	15,8
										DWS 630	102				
W 100	352 117 84			500	216	93			9,5	DWS 630	117				23,1

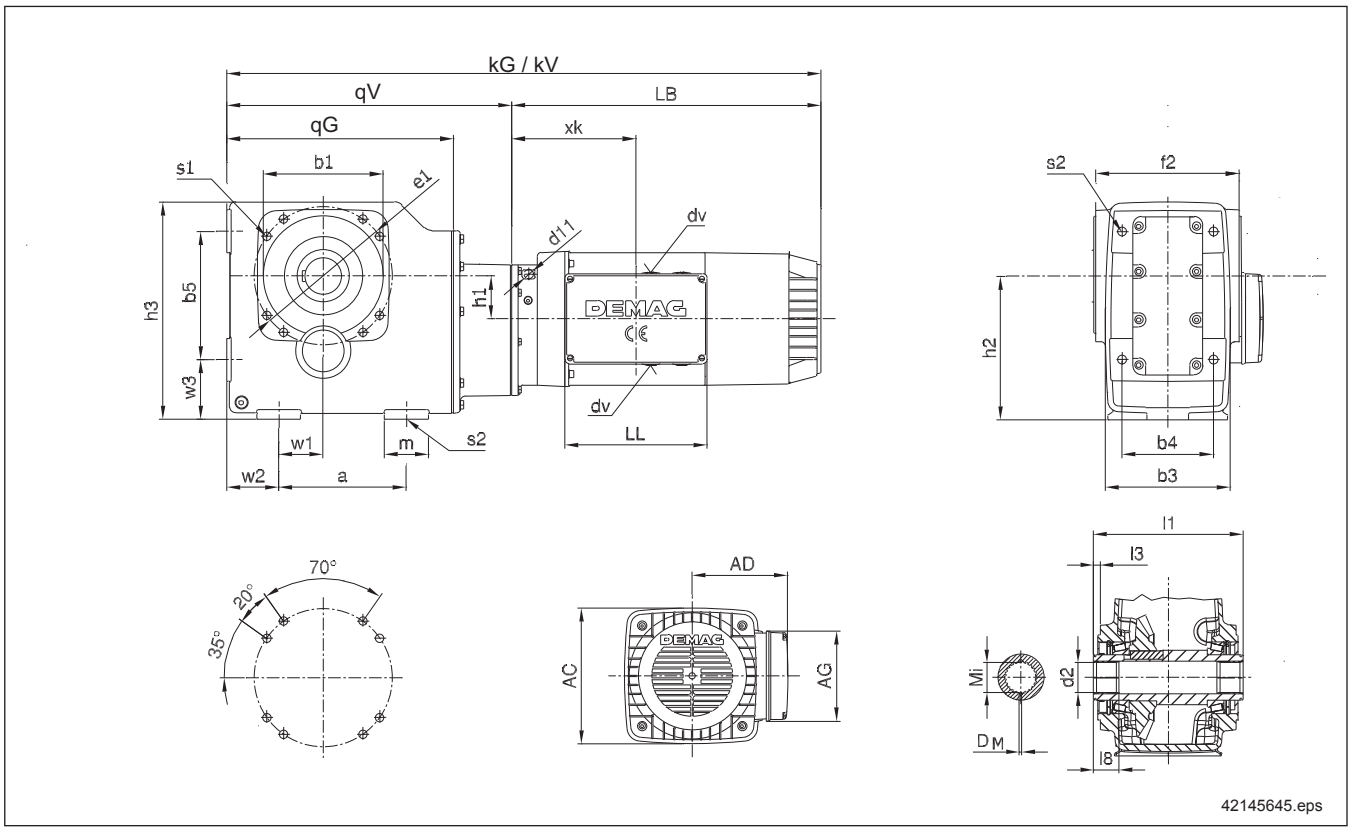
Connecting structure to attach the arm 2 torque bracket

The diagram shows a recommended design for a connection bracket to be provided by the customer (not included in the scope of delivery).



1) Set includes arm 2 torque bracket, damping elements, washers with lock nut and bolt and housing gearbox bolted connection

6.11 Angular geared motors
Universal type WUK



Gearbox	dimensions [mm]																	
	a	b1	b3	b4	b5	e1	f2	h1 T	h1 Q	h2	h3	m	qG	qV	s1	s2	w1	w2	w3
WUK 70	250	180 j6	240	175	250	215	270	6	56	245	373	70	361,0	473,5	M16x21	M16x21	65	65	60
WUK 80	245	230 h6	240	175	245	265	275	32	82	275	417	80	435,5	548,0	M16x21	M20x35	85	100	115
WUK 90	310	250 h6	280	210	310	300	310	32	93	315	481	90	496,5	626,0	M20x30	M24x44	110	95	115
WUK 100	400	300 h6	350	250	400	350	380	44	122	390	596	100	612,0	750,5	M20x35	M30x50	140	120	130

20368744_005

Gearbox	WK [1]	Gearbox output shaft dimensions [mm]					
		d2 DIN 5480 7H/6g	**l1**	**l3**	**l8**	**M_i**	**D_M**
WUK 70	K 65	N65 x 2 x 31	295	12,5	45	57,675 +0,045	3,50
WUK 80	K 75	N75 x 3 x 24	299	12,0	45	63,962 +0,050	5,25
WUK 90	K 90	N90 x 3 x 28	336	13,0	45	79,136 +0,042	5,25
WUK 100	K 110	N110 x 3 x 35	418	19,0	55	99,031+0,049	5,25

20368744_006

Dimensions [mm]	Motor					
	ZB. 80 / 90A	**ZB. 90B / 100**	**ZB. 112 / 132**	**ZB. 160 / 180A**	**ZB. 180B / 200**	**ZB. 225**
AC	157	196	260	314	394	440
AD	134	152	185	269	311	332
dv	4xM25	2xM25	2xM32	2xM40	2xM40	2xM40
(M.. X 1,5)		2xM32	2xM40	2xM50	2xM50	2xM50
LL	153	168	273	273	273	273
AG	103	133	173	173	173	173

20368744_003

1) WK: shaft code

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Gearbox	3-stage TD Dimensions [mm]	Motor					
		ZB. 80 / 90A	ZB. 90B / 100	ZB. 112/132	ZB. 160 / 180A	ZB. 180B / 200	ZB. 225
WUK 70	kG	762	804	946	1052	1176	1226
	xk	159	171	226	240	249	259
	d11	18	16	20	28	28	28
	LB	401	443	585	691	818	865
	$h11_{max}$	373	436	373	396	436	373
WUK 80	kG	836	878	1020	1127	1250	1300
	xk	159	171	226	240	249	259
	d11	18	16	20	28	28	28
	LB	401	443	585	691	818	865
	$h11_{max}$	417	417	417	417	440	463
WUK 90	kG	–	936	1078	1185	1311	1358
	xk	–	168	223	237	246	256
	d11	–	22	15	28	28	28
	LB	–	440	582	688	815	862
	$h11_{max}$	–	481	481	481	481	503
WUK 100	kG	–	–	1194	1300	1427	1474
	xk	–	–	223	237	246	256
	d11	–	–	17	28	28	28
	LB	–	–	582	688	815	862
	$h11_{max}$	–	–	596	596	596	596

20368744_007

Gearbox	4-stage QD Dimensions [mm]	Motor					
		ZB. 80 / 90A	ZB. 90B / 100	ZB. 112/132	ZB. 160 / 180A	ZB. 180/200	ZB. 225
WUK 70	kV	885	928	1070	1177	–	–
	xk	170	183	238	252	–	–
	d11	18	18	18	29	–	–
	LB	412	455	597	703	–	–
	$h11_{max}$	373	373	373	373	–	–
WUK 80	kV	960	1003	1145	1251	–	–
	xk	170	183	238	252	–	–
	d11	18	18	18	29	–	–
	LB	412	455	597	703	–	–
	$h11_{max}$	417	417	417	417	–	–
WUK 90	kV	1032	1074	1216	1322	–	–
	xk	164	176	231	245	–	–
	d11	21	22	25	29	–	–
	LB	406	448	590	696	–	–
	$h11_{max}$	481	481	481	481	–	–
WUK 100	kV	1151	1193	1335	1442	–	–
	xk	159	171	226	240	–	–
	d11	18	16	20	28	–	–
	LB	401	443	585	691	–	–
	$h11_{max}$	596	596	596	596	–	–

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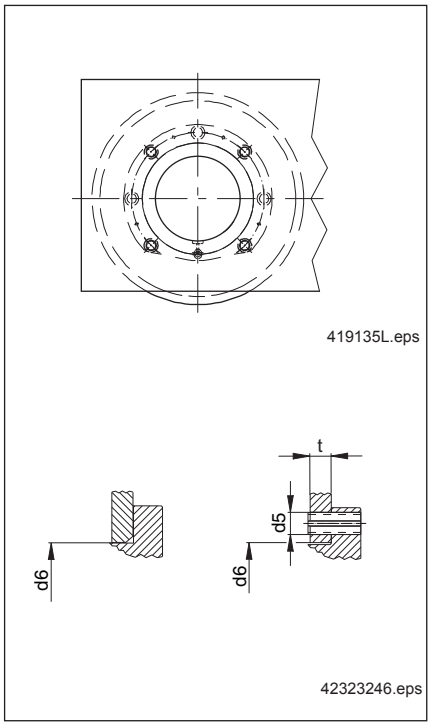
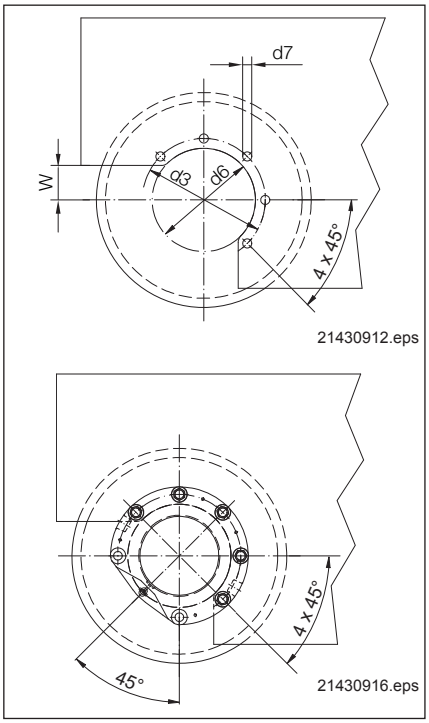
For dimensions of geared motors with coupling connection and KB or Z motors,
see geared motor catalogue 203 151 44 or DriveDesigner online at: www.demag-drivedesigner.com

6.12 Wheel set flange





Wheel set	Installed in hollow profile section/box girder							Corner-bearing installation	
	Flange centring arrangement 3)	W		Split sleeve centring 2)			Bolted connection	Flange centring arrangement 3)	Bolted connection
	d6 H7	min	max	d6	d5 H12 1)	t		d6 H7	
DWS 400	210 line bored	50	70	214 flame cut	21 Split sleeve 21x50	15 - 25	2x4 off M16x65 300Nm	210 line bored	2x5 off M16x65 300Nm
DWS 500	210 line bored	50	70	214 flame cut	21 Split sleeve 21x50	20 - 32	2x4 off M16x65 300Nm	210 line bored	2x5 off M16x65 300Nm
DWS 630	268 line bored	70	90	272 flame cut	21 Split sleeve 21x80	24 - 30	2x4 off M20x90 720Nm	268 line bored	2x5 off M20x90 720Nm

1) Drill pre-drilled bore hole to standard dimension and pin after installation and alignment.
Pre-drilled bore hole diameter 5mm (for DWS 400 and 500) or 10mm (for DWS 630). Centring pins available as accessory (R62).

2) The radial force is absorbed by split sleeves.

3) The radial force is absorbed by snug fit.

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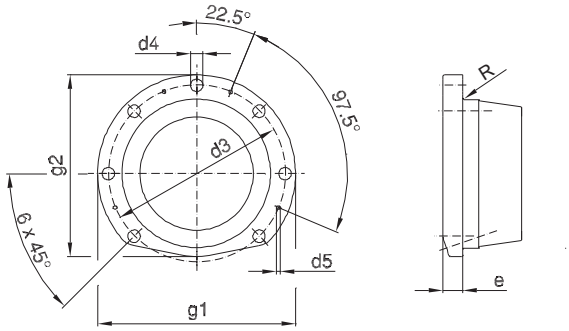

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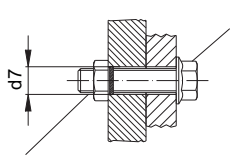
Flange connection to customer's superstructure



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Wheel set	Flange							
	e	g1	g2	d3	d4	d7 H11 1)	R	Weight [kg]
DWS 400	28	280	257	250	17,5	18,5	2	30,1
DWS 500	28	280	257	250	17,5	18,5	2	30,1
DWS 630	36	370	330	320	22	23	1,5	55,2

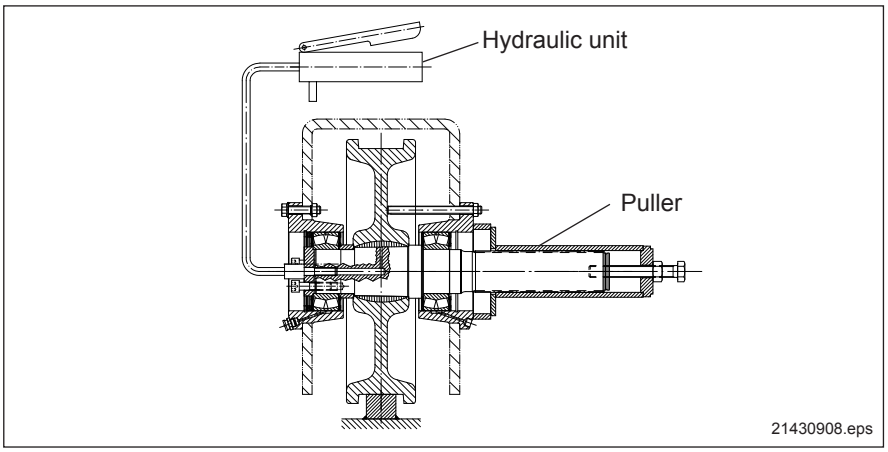
1) Bore hole detail for set nut

7 Assembly and disassembly of wheel set

7.1 Hydraulic equipment for travel wheel assembly and disassembly

Hydraulic equipment provides an additional simple and convenient method to join or separate a travel wheel and travel shaft.

Assembly: The oil is pressed into the conical connection through the travel wheel shaft at high pressure. The hydraulic unit consists of a pump, high-pressure tube, reduction adapters and operating instructions. Each travel wheel shaft is provided with an oil channel.



Disassembly: A puller is also required in addition to the pump.

Wheel set	Part No. hydraulic unit	Part No. puller
DWS 400	810 700 44	641 277 44
DWS 500		
DWS 630		905 465 44

7.2 Track gauge adjustment

The track gauge may be adjusted by means of distance washers.

Wheel set	Distance washers	
	Thickness	Max. adjusting range
DWS 400	4 mm and 1 mm	± 10 mm
DWS 500	4 mm and 1 mm	± 10 mm
DWS 630	4 mm and 1 mm	± 12 mm

8 Annex

8.1 Addresses

The current addresses of the sales offices in Germany and the subsidiaries and agencies worldwide can be found on the Demag Cranes & Components homepage at www.demagcranes.com ► Contact and Demag worldwide

www.demagcranes.de / Kontakte

8.2 General Terms and Conditions of Sale and Delivery

The valid General Terms of Services and Delivery of Demag Cranes & Components GmbH can be found on the Demag Cranes & Components GmbH homepage at

/ Corporate / News & Info / General Terms of Services and Delivery of Demag Cranes & Components GmbH

Demag Cranes & Components GmbH
Drives
P.O. Box 67 · D-58286 Wetter
Telephone +49 (0) 2335 92-0
Telefax +49 (0) 2335 92-7676
Email: drives@demagcranes.com
www.demagcranes.com

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