

SGDR series

Curved-tooth steel gear coupling



Bell-housings & Couplings sizing

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SOFTWARE FOR AUTOMATIC CALCULATION

The web-based software program will allow you to select the most suitable MP Filtri's Filters, in accordance with your process design requirements.

The program will automatically check your input design process prior to propose you the acceptable solutions and create an output in PDF report style format.

The MP Filtri Selection Tool software program is easy to use with a flexible fast design method and provides improved layout formats with full descriptions.

The web-based tool is available at MP Filtri website at following link:
<https://www.mpfiltri.com/tools/>

The related, complete user guide is available as Manual and downloadable from the "Download" section of MP Filtri website, as well as scanning the following QR code



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**BELL-HOUSINGS
& COUPLINGS**



BELL-HOUSINGS & COUPLINGS SIZING

A GUIDE TO SELECT THE CORRECT BELL-HOUSING AND DRIVE COUPLING MANUALLY

DATA REQUIRED

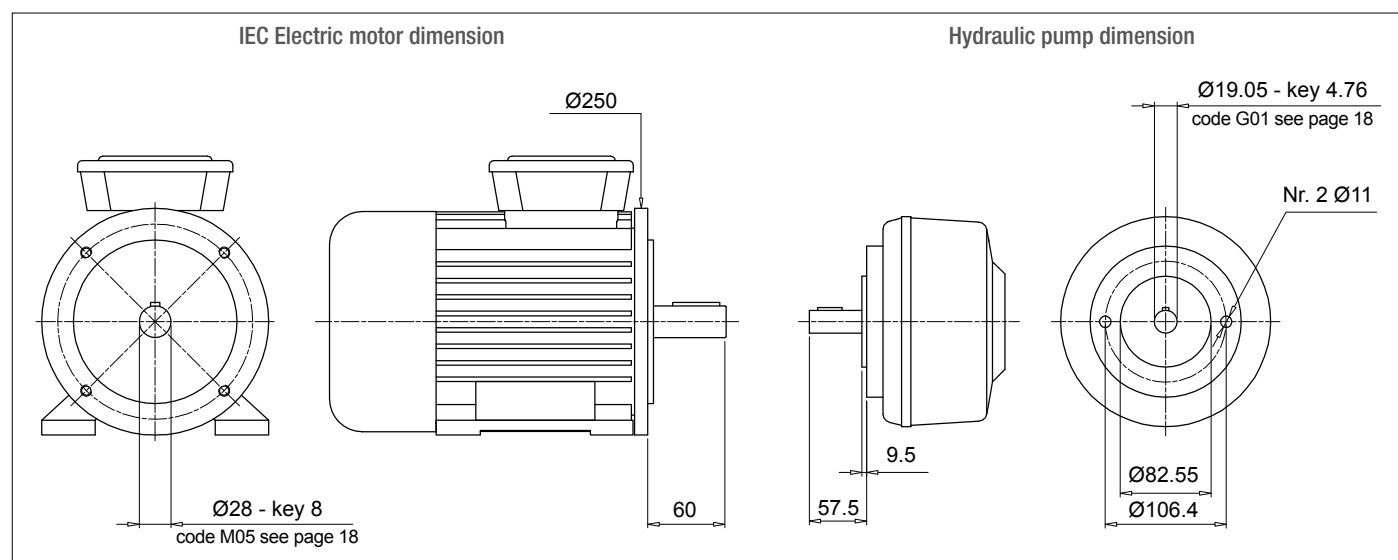
- Electric motor power/motor size
- Manufacturer and pump type

TO VERIFY:

- 1 - Pump and motor shaft dimensions (see electric motor data sheet)
- 2 - Shaft and flange pump (see pump data sheet)

Example:

- Electric motor 2.2 kW - size 100-112
- Atos pump code PFE31 - Shaft 1



Bell-Housing's length calculation

- $H = 60 + 18 + 57.5 = 135.5 \text{ mm}$ (18 = Sp spider - see page 31)
- Choose type of bell-housing (LMC - LMS):
 - For monobloc bell-housing LMC/LDC series see pages 75 ÷ 81
 - For Low noise bell-housing LMS/LDS series see pages 81 ÷ 89
 - For Multi-components 2-3 bell housing series see pages 91 ÷ 111

Note:

The length of bell-housing must be $\geq$ than the length calculated (135.5 mm)

Case A

Solution with monobloc bell-housing series **LMC/LDC**

Pages 75 ÷ 81 for IEC Electric motor size 100-112 - LMC250

LMC 250 bell-housing with height ≥ 135.5 - LMC250AFSQ

The bell-housing code must be completed with pump drilling code (see pages 60-61).

For the specific case:

Spigot hole 82.55 - PCD 106.4 - Nr.2 holes M10 : Drilling code 060

Definitive bell-housing code **LMC250AFSQ060**

Case B

Solution with low noise bell-housing series **LMS/LDS**

Pages 83 ÷ 89 for IEC Electric motor size 100-112 - LMS250

LMS 250 bell-housing with height ≥ 135.5 - LMS250AFSA

The bell-housing code must be completed with pump drilling code (see pages 60-61).

For the specific case:

Spigot hole 82.55 - PCD 106.4 - Nr.2 holes M10 : Drilling code 060

Definitive bell-housing code **LMS250AFSA060**

Coupling selection

Motor half-coupling (see page 26)

For IEC Electric motor size 100/112, the half-coupling is **SGEA21M05060**

Spider (see page 31)

For SGEA21, EGE2 - EGE2RR

(choose spider material on the base of the application, oil, temperature and cycle machine, etc.)

Pump half-coupling

Choose the drilling code - see pages 18-19 for shaft 19.05 - key 4.76 - code: **G01**

Pump half-coupling length = BH length - THK Spider - THK Spigot

LMC = 138 mm - 60 - 18 - 9.5 = 50.5 mm

LMS = 148 mm - 60 - 18 - 9.5 = 60.5 mm

LMC - Choose the half-coupling's length at page 26 $\leq$ 50.5 mm.

LMS - Choose the half-coupling's length at page 26 $\leq$ 60.5 mm.

LMC - Available length for SGEA21 = 50 mm

LMS - Available length for SGEA21 = 60 mm

Half coupling for LMC: **SGEA21G01050**

Half coupling for LMS: **SGEA21G01050**

Note: for multi pumps we recommend to use a specific support on the base of the pump's dimensions and weight.

The half-couplings series SGE*** allow secure transmission between the electric motor and the driven side; they are able to absorb shocks and vibration, in addition to compensating radial misalignment, angular and axial.

The assembly of the couplings can be horizontal/vertical, withstanding vibration and load reversals.

The complete range of couplings are extrapolated from the on-line software, with a length equal than the shaft on which must be mounted and they are completed with grub screw for fixing located on the key.

Available for cylindrical shaft with metric and imperial dimensions as well for splined shafts as per specification DIN, ISO and SAE.

Admissible misalignment radial, angular and axial

Max admissible radial misalignment

Half-coupling	R [mm]
SGE * 01	0.5
SGE * 21	1.0
SGE * 31	1.0
SGE * 40	1.0
SGE * 51	1.5
SGE * 60	1.5
SGE * 80	2.0
SGE * 90	2.0

Max admissible angular misalignment

Half-coupling	β [°]
SGE * 01	1.5°
SGE * 21	
SGE * 31	
SGE * 40	
SGE * 51	
SGE * 60	
SGE * 80	
SGE * 90	

Max admissible angular alignment

Half-coupling	A [mm]
SGE * 01	2.0
SGE * 21	2.5
SGE * 31	3.0
SGE * 40	3.5
SGE * 51	3.5
SGE * 60	3.5
SGE * 80	4.0
SGE * 90	5.0

Standard ATEX Directive 2014/34/EU and UK Regulation S.I. 2016 No. 1107 (as amended)



Half-couplings are available to use in hazardous area.

The couplings are certified according to Standard ATEX Directive 2014/34/EU and UK Regulation S.I. 2016 No. 1107 (as amended) - Category certified 2G - Area 1 and 2.

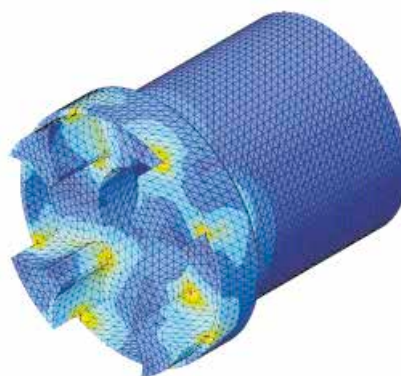
Other information available on our web site "www.mpfiltri.com".

MP Filtri couplings are developed with:

CAD 3D



FEM



Drawings 3D available on website www.mpfiltri.com at section TOOLS.

Examples verification of the coupling

Torque transmitted by electric motor:

Mt: $9560 \times \text{kW} / \text{rpm} = \text{Nm}$

Me > $\text{Mt} \times \text{S} = \text{Nm}$

Where:

Mt: Torque transmitted by electric motor

Me: Torque transmitted by coupling

kW: Power of electric motor

Rpm: Revolutions per minute of electric motor

S: Service factor

Table 1

Small pumps, uniform load, low operating pressures e.g. rotary action machine tools - 5/8 work cycles per hour	1.3
Small pumps, uniform load, high working pressures e.g. lifting equipment - 120-150 work cycles per hour	1.5
Pumps, non-uniform load e.g. lifting equipment - 280-300 work cycles per hour	1.7

Example

Electric motor, 4 pole - 4 kW
hydraulic pump, uniform load, low operating pressure

Mt: $9560 \times 4 / 1500 = 25.45 \text{ Nm}$

Me > $25.49 \times 1.3 = 33 \text{ Nm}$

Half-coupling SGEA21 meets the above requirement.

Select the half-coupling of the calculated size from the motor half-couplings table.

Note: When selecting the coupling, remember that for pumps with splined shaft, only cast iron couplings of the SGEG series can be used.

Determine the size of the coupling according to the type of installation and application envisaged, on the basis of the formulas and the following tables:

Table 2

Half-coupling type	External diameter [mm]	Nominal torque Me - Nm	Maximum transmissible torque Me - Nm	
ROTAFIT				
SGEA01	SGEK01	44	10	20
SGEA21	SGEK21	70	95	190
SGEA31	SGEK31	85	190	380
SGEA51	SGEK51	109.5	310	620
				ALUMINIUM
SGEG01		40	10	20
SGEG30		80	190	380
SGEG40	SGEK40	95	310	620
SGEG60	SGEK60	120	430	860
SGEG80	SGEK80	160	1250	2500
SGEG90		200	5500	6100
				CAST IRON
SGES40		95	310	620
SGES60		120	430	860
SGES80		180	1250	2500
				STEEL

Nominal and maximum torque values are referred to couplings assembled with standard flexible spiders of the **EGE**** series (see page 31).

Where higher torques are to be transmitted, use flexible spiders of the **EGE**RR** series (see page 31).

Parallel shaft - Metric Dimensions

Ø [mm]	key [mm]	Code
12	4	C00
15	5	C01
16	4	C02
16	5	C03
17	5	C04
18	6	C05
20	5	C06
19	5	C07
30	10	C08
20	6	C09
16	5	C10
15	4	C11
22	6	D00
24	6	D01
25	8	D02
30	8	D03
32	10	D04
35	10	D05
40	12	D06
45	14	D07
50	14	D08
70	20	D09
22	8	D10
52	16	D20
8	3	E00
10	3	E01
22	5	E02
32	8	E03
35	8	E04
82	22	E05
25	7	E06
63	18	E07
9	3	M00
11	4	M01
14	5	M02
19	6	M03
24	8	M04
28	8	M05
38	10	M06
42	12	M07
48	14	M08
55	16	M09
60	18	M10
65	18	M11
75	20	M12
80	22	M13
90	25	M14
95	25	M15
100	28	M16
110	28	M17
85	22	M18

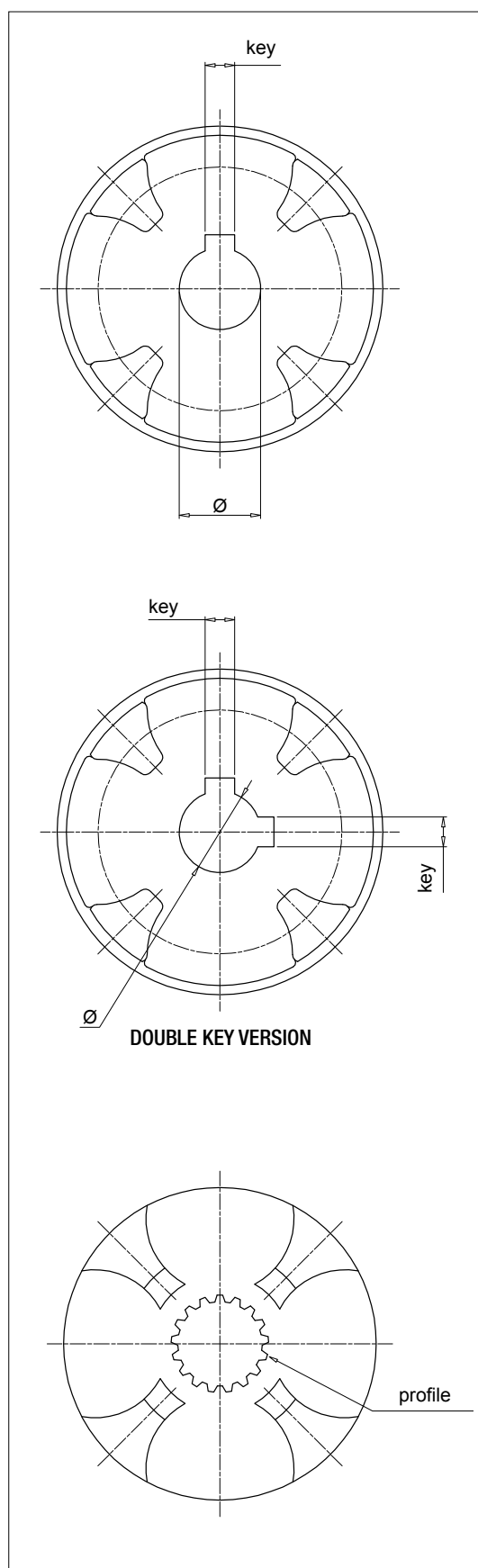
Parallel shaft - Imperial Dimensions

Ø [inch]	Ø [mm]	key [inch]	key [mm]	Code
7/16"	11.11	1/8"	3.18	G00
3/4"	19.05	3/16"	4.76	G01
7/8"	22.22	3/16"	4.76	G02
7/8"	22.22	1/4"	6.35	G03
1"	25.4	3/16"	4.76	G04
1"	25.40	1/4"	6.35	G05
1 1/4"	31.75	1/4"	6.35	G06
1 1/4"	31.75	5/16"	7.94	G07
1 3/8"	34.94	5/16"	7.94	G08
1 1/2"	38.1	3/8"	9.52	G09
1 5/8"	41.27	3/8"	9.52	H00
1 3/4"	44.45	7/16"	11.11	H01
2"	50.8	1/2"	12.7	H02
2 11/32"	53.94	1/2"	12.7	H03
3/4"	19.02	1/8"	3.17	H04
1"	25.4	3/16"	4.76	H05
5/8"	15.87	3/16"	4.76	H06
17/32"	13.45	1/8"	3.18	H07
11/16"	17.46	3/16"	4.76	H08
1/2"	12.7	1/8"	3.18	H09
5/8"	15.87	5/32"	3.97	L00
7/8"	22.22	5/32"	4	L01
11/8"	28.58	1/4"	6.35	L02
3/4"	19.05	1/4"	6.35	L03
1 7/8"	47.63	1/2"	12.7	L04
3 3/8"	85.73	7/8"	22.23	L05
2 3/8"	60.33	5/8"	15.88	L06
2 3/8"	60.33	1/2"	12.7	L07
2 7/8"	73.03	3/4"	19.05	L08
3 5/8"	92.07	7/8"	22.22	L09
1 5/8"	41.6	15/32"	12	L10
1 1/8"	28.58	5/16"	7.94	L15

Parallel shaft - Double Key

Ø [mm]	key [mm]	Code
16.00	4.00	C02***2H
	5.00	
20.00	5.00	C06***2M
	6.00	
19.00	5.00	C07***2L
	6.00	
24.00	6.00	D01***2N
	8.00	
30.00	8.00	D03***2P
	10.00	
22.22	4.76	G02***2E
	6.35	
25.40	6.35	G04***2F
	4.76	
31.75	6.35	G06***2G
	7.94	

*** = coupling length



SAE Bore - ANS.B.92.1-1970

Profile	Nr. of Th	Code
17 th 8/16	17	PD01
14 th 12/24	14	PD02
16 th 12/24	16	PD03
17 th 12/24	17	PD04
9 th 16/32	9	PD05
11 th 16/32	11	PD06
12 th 16/32	12	PD07
13 th 16/32	13	PD08
15 th 16/32	15	PD09
21 th 16/32	21	PD10
23 th 16/32	23	PD11
27 th 16/32	27	PD12
40 th 16/32	40	PD13
20 th 24/48	20	PD14
21 th 24/48	21	PD15
23 th 24/48	23	PD16
25 th 24/48	25	PD17
26 th 24/48	26	PD18
27 th 12/48	27	PD19
28 th 24/48	28	PD20
29 th 24/48	29	PD21
32 th 24/48	32	PD22
21 th 32/64	21	PD23
30 th 32/64	30	PD24
33 th 32/64	33	PD25
23 th 40/80	23	PD26
36 th 48/96	36	PD27
41 th 48/96	41	PD28
47 th 48/96	47	PD29
13 th 8/16	13	PD30
15 th 8/16	15	PD31
14 th 16/32	14	PD32
40 th 16/32	40	PD33
33 th 16/32	33	PD34
9 th 20/40	9	PD35
10 th 16/32	10	PD36
25 th 20/40	25	PD37

Splined bore as per standard DIN5480

Profile	Nr. of Th	Code
W18 x 1.25 x 13	13	PA01
W20 x 1.25 x 14	14	PA02
W25 x 1.25 x 18	18	PA03
W28 x 1.25 x 21	21	PA04
W32 x 1.25 x 24	24	PA05
W38 x 1.25 x 29	29	PA06
W30 x 2 x 14	14	PA07
W32 x 2 x 14	14	PA08
W35 x 2 x 16	16	PA09
W37 x 2 x 17	17	PA10
W38 x 2 x 18	18	PA11
W40 x 2 x 18	18	PA12
W42 x 2 x 20	20	PA13
W45 x 2 x 21	21	PA14
W50 x 2 x 24	24	PA15
W55 x 2 x 26	26	PA16
W60 x 2 x 28	28	PA17
W70 x 2 x 34	34	PA18
W80 x 2 x 38	38	PA19
W60 x 3 x 18	18	PA20
W70 x 3 x 22	22	PA21
W75 x 3 x 24	24	PA22
W90 x 3 x 28	28	PA23
W105 x 3 x 34	34	PA24
W80 x 3 x 25	25	PA25
W50 x 1.25 x 38	38	PA26
W62 x 1.25 x 48	48	PA27
W40 x 1.5 x 25	25	PA28
W32 x 1.5 x 20	20	PA29
W40 x 1.25 x 30	30	PA30

Splined bore as per standard DIN5481

Profile	Nr. of Th	Code
8 x 10	28	PC01
10 x 12	30	PC02
12 x 14	31	PC03
15 x 17	32	PC04
17 x 20	33	PC05
21 x 24	34	PC06
26 x 30	35	PC07
30 x 34	36	PC08
60 x 65	41	PC09

Splined bore as per standard DIN5482

Profile	Nr. of Th	Code
A15 x 12	8	PB01
A17 x 14	9	PB02
A18 x 15	10	PB03
A20 x 17	12	PB04
A22 x 19	13	PB05
A25 x 22	14	PB06
A28 x 25	15	PB07
A30 x 27	16	PB08
A32 x 28	17	PB09
A35 x 31	18	PB10
A38 x 34	19	PB11
A40 x 36	20	PB12
A42 x 38	21	PB13
A45 x 41	22	PB14
A48 x 44	23	PB15
A50 x 45	24	PB16
A52 x 47	25	PB17
A55 x 50	26	PB18
A58 x 53	27	PB19
A60 x 55	28	PB20
A62 x 57	29	PB21
A65 x 60	30	PB22
A68 x 62	31	PB23
A70 x 64	32	PB24
A72 x 66	33	PB25
A75 x 69	34	PB26
A78 x 72	35	PB27
A80 x 74	36	PB28
A82 x 76	37	PB29
A85 x 79	38	PB30
A88 x 82	39	PB31
A90 x 84	40	PB32
A92 x 86	41	PB33
A95 x 89	42	PB34
A98 x 92	43	PB35
A100 x 94	44	PB36

Technical data

Couplings - Curved-tooth steel gear coupling

Gear couplings materials

Couplings: Steel C40

Sleeve: Polyamide PA66 Blue color

Temperature

Sleeve Polyamide PA66: from -20 °C to +90 °C

Compatibility with fluids

- Mineral oils types HH-HL-HM-HR-HV, to ISO 6743/4 standard
- Water based emulsions types HFAE-HFAS, to ISO 6743/4 standard
- Water glycol type HFC, to ISO 6743/4 standard: ask for anodized version

Note

For temperatures outside this range, contact
MP Filtri Technical and Sales Department

Special Applications

Any applications not covered by the normal indications
contained in this catalogue must be evaluated and approved
by MP Filtri Technical and Sales Department



IEC Electric motors

IEC Electric Motors size	C40 Carbon Steel				
	Shaft ISO 3019-2	Shaft ANSI B92. 1A 1976	Shaft DIN 5480	Shaft DIN 5481	Shaft DIN 5482
IEC 80 Ø200 - Ø19x40	●	●	●	●	●
IEC 90 Ø200 - Ø24x50	●	●	●	●	●
IEC 100 Ø250 - Ø28x60	●	●	●	●	●
IEC 112 Ø250 - Ø28x60	●	●	●	●	●
IEC 132 Ø300 - Ø38x80	●	●	●	●	●
IEC 160 Ø350 - Ø42x110	●	●	●	●	●
IEC 180 Ø350 - Ø48x110	●	●	●	●	●
IEC 200 Ø400 - Ø55x110	●	●	●	●	●

BLANK HALF-COUPLING

Pump half-coupling SGDR	Configuration example:	SGDR	28	PB
Size				
28				
42				
55				
Without bore PB				

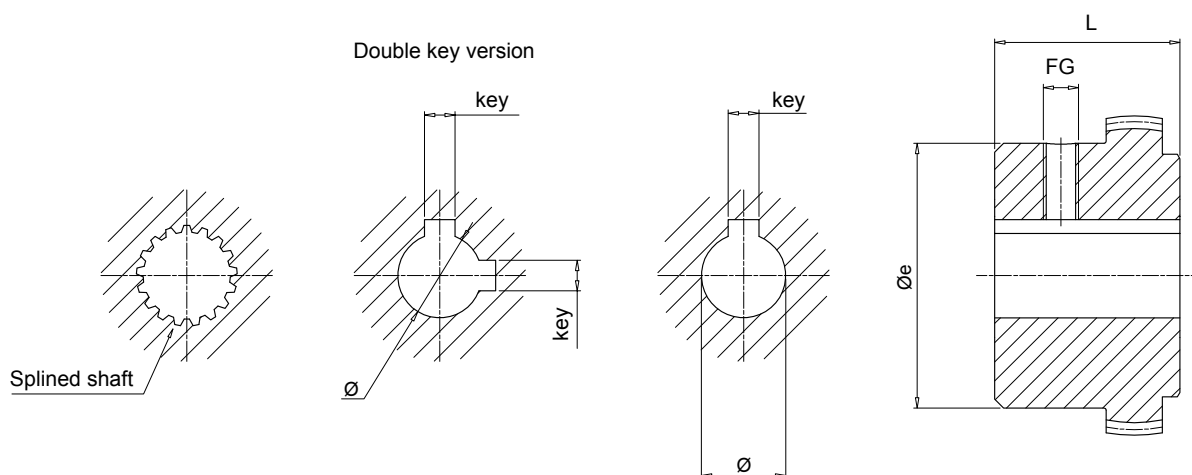
HALF-COUPLING FOR PARALLEL SHAFT

Pump half-coupling SGDR	Configuration example:	SGDR	28	G02	040	2E
Size						
28						
42						
55						
Bore size code G02 See page 18						
Length 040 See page 50						
Double key way (available combinations only) 2E See page 18 (Parallel shaft - double key only)						

HALF-COUPLING FOR SPLINED SHAFT

Pump half-coupling SGDR	Configuration example:	SGDR	28	PD02	040
Size					
28					
42					
55					
Bore size code PD02 See page 19					
Length 040 See page 50					

Dimensions



Notes:

- Screw included
- Double key version only pump side

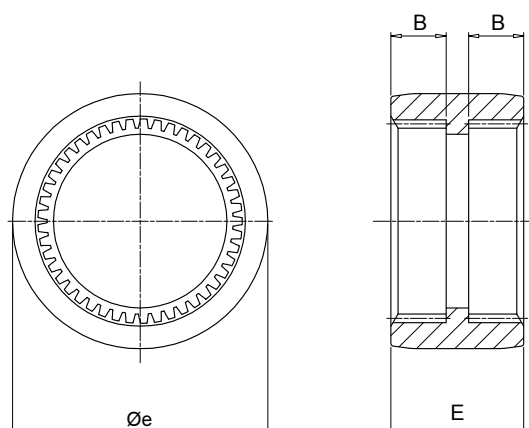
Motor half-coupling

IEC - Electric motors		Half-coupling code	Dimensions [mm]					Weight [kg]
Motor size	Shaft end (Ø x L)		Øe	L	Ø	key	Fg	
80	19x40	SGDR28M03040	45	40	19	6	M6	0.5
90	24x50	SGDR28M04040	45	40	24	8	M6	0.5
100-112	28x60	SGDR28M05040	45	40	28	8	M6	0.5
132	38x80	SGDR42M06042	60	42	38	10	M8	1.0
160	42x110	SGDR42M07042	60	42	42	12	M8	1.0
180	48x110	SGDR55M08060	84	60	48	14	M8	2.5
200	55x110	SGDR55M09060	84	60	55	16	M8	2.5

Pump half-couplings

Half-coupling code	Dimensions [mm] Øe L	Weight [kg]
SGDR28***	45 40	0.5
SGDR42***	60 42	1.0
SGDR55***	84 60	2.5

Complete the half-coupling designation with the pump interface code and the length.
Example: **SGDR280PD02050** (see page 19).



Sleeve

Code	Half-coupling code	Dimensions [mm]			Nominal torque [Nm]	Maximum torque [Nm]	Weight [kg]
		$\varnothing e$	E	B			
EGR066PA	SGDR28	66	38	16	30	90	0.050
EGR090PA	SGDR42	90	52	22	120	360	0.150
EGR125PA	SGDR55	125	65	27	200	600	0.371