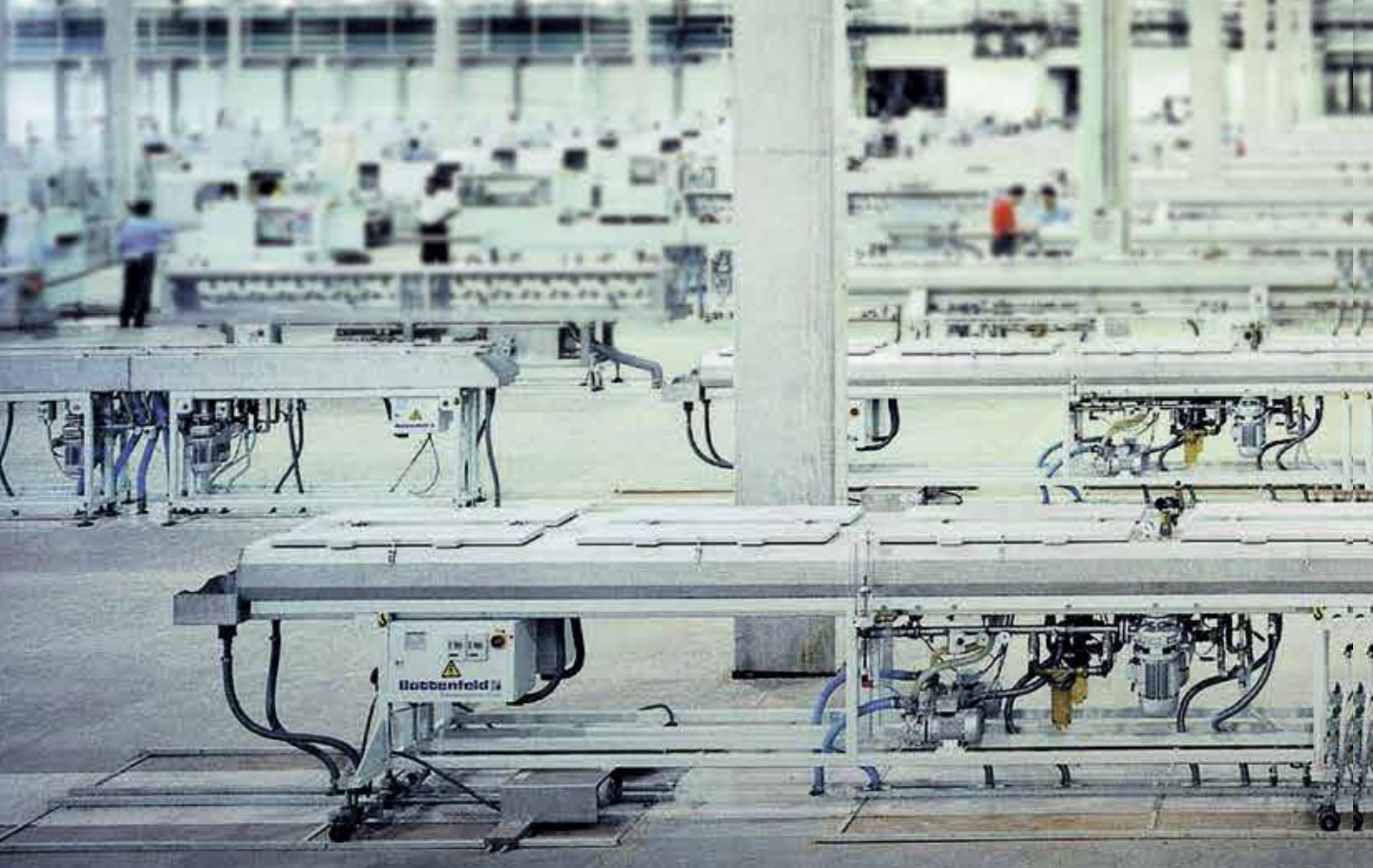


# 平行双螺杆挤出机齿轮箱

——现代挤出设备的核心部件

The Key Component for  
Highest Reliability in Modern Extrusion





## 优质的产品是您从中获益的保证

亨设尔公司为客户开发高效且安全的动力传动系统方案。这些动力传动系统广泛应用于对高可靠性有特殊要求的诸多领域，如：汽车，电厂，工程机械等。我们提供的产品，系统完美协调，可以实现在最少维护成本下达到高效而安全的作业。

亨设尔公司于1810年成立，总部位于德国黑森州卡塞尔市。在动力驱动领域，亨设尔凭其高水平的专业技术以及高质量的产品享誉全球。如今在许多国家，带有亨设尔公司标志的机车及卡车依然在使用，这标志着亨设尔产品遍及整个动力传动行业。

基于此，亨设尔公司研发了挤出机专用齿轮箱-公司系列产品中的核心产品。我们开发的齿轮箱，结合现代化先进技术与精细化制造，具有最高的扭矩输出和最高的扭矩系数。

**得益于悠久的传统优势，亨设尔公司为您提供专业解决方案。**

### 可靠性

200多年的悠久历史，亨设尔公司凭借其高质量的产品与服务已被客户视为最值得信赖的合作伙伴。亨设尔公司根据客户的不同要求所研发的产品具有极高的操作稳定性。产品生产研发的所有程序的安全与稳定性是与客户合作中的主要特点。

### 创新性

掌握德国最先进工程技术的亨设尔公司，充分运用其行业知识不断扩大其核心市场。专业技术在日常工作中得以运用并不断得到巩固与提升，基于此，我们始终为客户提供创新性解决方案，从而保证我们的传统竞争优势并始终位居行业技术的最前端。

### 高效性

亨设尔公司不论是其内部员工的作业，工程设计，制造生产还是技术服务方面，如其产品一样具有高效性。最高运转效率，最低维护成本及其高稳定性成就了亨设尔产品的卓越。





## Quality and Reliability pays off



Henschel develops the optimal solution wherever power is efficiently and safely transmitted. This applies to vehicles, plants and machinery, that require high reliability and availability. We provide perfect harmony within the entire system guaranteeing a safe operation with minimal maintenance and high efficiency.

Henschel was founded in 1810 in Kassel. With a high level expertise in the field of drive technology, Henschel has developed a worldwide reputation excelling in its high quality. In many countries today, locomotives and lorries with the Henschel star are in operation. This is symbolic of a knowhow that is very familiar in the entire power train industry today.

On this base we developed our Extruder gearboxes – the core elements of our range. We develop and deliver modern, state-of-the-art Extruder gearboxes for highest output and strongest torque rates.

**Committed to this tradition we develop solutions.**

### **Reliable**

Henschel services and products have a reputation for over 200 years of being very reliable. We develop systems that have a high operational reliability and are able to cope with unpredictable requirements. Safety and stability in all processes and procedures are a major feature in cooperation with our customers.

### **Intelligence**

Henschel with his German state of the art engineering applies its best knowledge in its core markets. The validity of this knowledge is employed daily to expand and share. Based on this knowledge, we design new solutions, securing our competitive edge.

### **Efficient**

In the operation, engineering, manufacturing and service, we are as efficient as our products. Highest efficiency, low maintenance frequencies and high safety provide excellent products.



## 50多年的经验分享， 我们一起回顾亨设尔挤出机用齿轮箱 的这一悠久而成功的发展过程。

DURUMAX® 系列产品 象征着不断创新的挤出机齿轮箱技术和质量的最高标准。深入研究，研发与测试结合最优的质量控制方法奠定了挤出机齿轮箱的高性能，而且结构紧凑。

为了满足最终用户不断提高的要求，不仅从输出考虑，我们保持时刻引领挤出机齿轮箱发展潮流的理念。

对于挤出机生产线，驱动装置作为重要的必不可少的机械部件，其部件必须保证最高的质量和满足各种工况要求。基于此，亨设尔公司致力于研发制造具有高质量，高性能的单螺杆挤出机及双螺杆挤出机用驱动装置。

### 优势纵览：

- 使用高强度钢，产品具有很高的功率密度并结构紧凑。
- 齿面磨齿以及齿形修正优化设计，产品运行非常平稳且噪音极低。
- 减振灰铁的铸造箱体设计。
- 具有最高安全使用系数。

**我们提供的经优化的系列齿轮箱和驱动装置能满足各种输出扭矩的要求。**



## **With more than 50 Years of Experience, we look back on a long and successful Tradition of manufacturing Extruder Gearboxes**

The DURUMAX® series stands for innovative extrusion gear technology at the highest level and with the highest quality. Intensive research, development and testing, as well as optimal quality control are the guarantee for the high performance of the Extruder gear in a compact design. We offer trend setting Extruder gearbox concepts which meet the daily high demands of the end users, not only in terms of output. For extrusion lines, the drive unit consists of an essential machine component representing the highest quality and fulfilling all requirements. Under these conditions, Henschel produces high-quality, high-performance single-screw and twin screw Extruder drives.

### **Take advantage of the following benefits:**

- Compact design with high performance through the use of high-strength steels
- Optimal smoothness and quietness by ground helical gears and optimized tooth geometry
- Vibration reducing housing construction in cast iron
- High reliability and availability

**We have for each output range optimum alternative transmission and drive solutions.**



# DURUMAX<sup>®</sup> – TPM 3

## 异向旋转双螺杆挤出机用齿轮箱

DURUMAX<sup>®</sup> TPM 3 齿轮箱是世界上首次运用平行3-轴分配设计理念设计的齿轮箱，迄今为止，这种设计的齿轮箱已有40多年历史，而且这种设计理念一直被广泛应用。

## Twin Shaft Extruder Gearbox counter-rotating

The DURUMAX<sup>®</sup> TPM 3 gearbox was the first one designed with the 3-shaft distribution concept and is running in the market for more than 40 years. Nevertheless of its age this design concept still has a wide range of applications.

## 应用领域 Examples of areas of application are:

管材挤出 Pipe Extrusion | 粉末挤出 Profile Extrusion | 造粒 Granulation

### 设计特点:

- 亨设尔挤出机齿轮箱采用模块化设计，方便适应用户的不同要求。整台齿轮箱包括四个模块：减速级单元，止推轴承箱单元，分配级齿轮箱单元及用于连接料筒的适配箱单元。每一个模块可以单独更换。齿轮箱体材料为减振灰铁的铸造箱体，厚壁，低噪音。
- 分配级部分包含一对斜齿轮传动，尽管空间有限，但具有极高的扭矩系数。3轴功率分配设计理念被广泛应用40多年，其高稳定性已被世界所公认。

### 工程设计:

- 齿轮箱包含一级减速，以及一对单斜齿轮传动的动力分配级，设计可靠。
- 在挤出机工艺过程中，止推轴承承受工艺过程中所产生的背压。
- 直接驱动或V-带轮驱动
- 传输扭矩高达 28.165Nm,并适用于所有传动比
- 所配备的滚动轴承均用德国制造的品牌，如: INA, FAG, SKF。
- 齿轮设计采用齿面硬化，齿形修正优化处理从而最大化齿轮箱的负载能力。传动平稳，低振动成为亨设尔齿轮箱高质量的保证。
- 不同于只按理论计算确定齿轮的安全系数，我们将理论计算值定义齿轮设计安全系数与现场获得的外部干扰因素实际经验相结合。
- 齿轮箱采用强制润滑和飞溅润滑相结合，按齿轮箱实际需要定制的冷却润滑油系统确保正确的散热和润滑，即使在恶劣的工况环境下，齿轮箱也可以实现最佳散热，最低损耗，使齿轮箱获得最高的效率。
- 内置储油箱实现飞溅润滑与强制润滑相结合，可以应对紧急运行情况。
- 集成润滑系统，配备油泵，油过滤器及压力开关。
- 根据客户要求，可以选用圆柱体连接或螺纹连接。
- 箱体喷涂：喷涂底漆。

### An overview of your advantages:

- The Extruder gearbox consists of the gearbox modules step-down gear, thrust bearing housing, power divider, adapter housing or alternatively tie bars. Each of these modules can be individually modified and interchanged. The gearbox housing modules are made of vibration reducing, thick-walled, noise reducing grey cast iron.
- The power divider with a single helical gear set transfers the torque safely and reliably whilst taking up a minimum of space. This 3-shaft power divider concept has proven its reliability world-wide since more than 40 years.

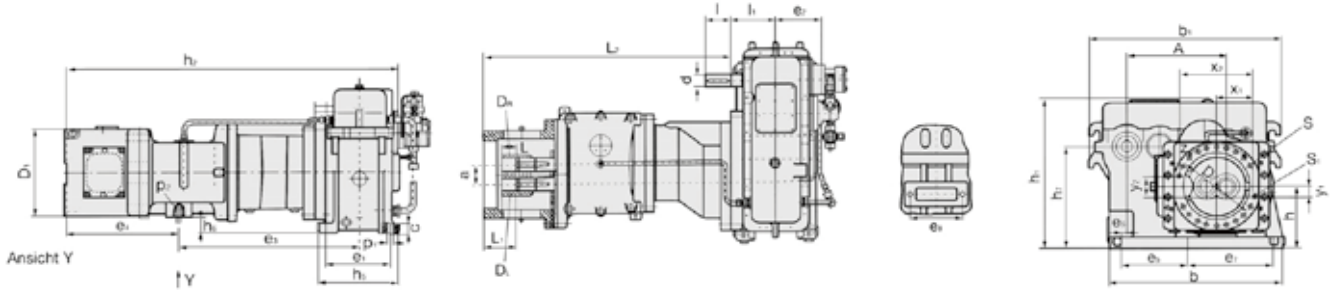
### Engineering:

- Reliable design with a step-down gear and power divider with a single helical gear set.
- Thrust bearings to pick up the highest thrust forces from the extrusion process.
- Direct or V-belt drive.
- Torque up to 28.165 Nm and all transmission ratios.
- Brand name roller bearings from German manufacturers such as INA, FAG or SKF.
- The gears are case-hardened, correction-ground and optimised for the highest load capacity. The smoothness of running and low vibration of the Henschel gearboxes are a proof of their quality.
- In opposite of the theoretical calculation we define the safety factors for the gears and the field-experienced application factors for external disturbance variables.
- A combined splash and forced spray lubrication system guarantees optimal lubrication, even in unfavourable environmental conditions, best heat elimination and low losses.
- Splash and forced spray lubrication with integrated oil reservoir for emergency running properties
- Integrated lubrication system with flanged oil-pump, oil-filter and pressure switch
- Cylinder and screw connections according to customer requirements
- Paintwork: priming paint

## 安装尺寸 Assembly dimensions

齿轮箱型号 gearbox size	主要尺寸参数 main dimensions mm								
screw-Ø	a	A	h	h <sub>1</sub>	h <sub>2</sub>	h <sub>5</sub>	h <sub>6</sub>	h <sub>7</sub>	重量 weight kg
TPM 3-90	75,35	382,925	230	ca. 561	1.261	310	60	378	830
TPM 3-107	90	489	275	ca. 670	1.533	408	65	457	1.440
TPM 3-130	110	583	315	ca. 805	1.769	480	75	547	2.220

## 安装方式 Mounting



## 功率参数表 Power rating table

齿轮箱型号 gearbox size	TPM 3-90			TPM 3-107			TPM 3-130		
中心距 center distance	75,35 mm			90 mm			110 mm		
n <sub>2</sub> [rpm]	P <sub>M</sub> [kW]	T <sub>2</sub> [Nm]	F <sub>axW</sub> [kN]	P <sub>M</sub> [kW]	T <sub>2</sub> [Nm]	F <sub>axW</sub> [kN]	P <sub>M</sub> [kW]	T <sub>2</sub> [Nm]	F <sub>axW</sub> [kN]
5	4	8.435	214	8	16.000	303	15	28.165	448
10	9	8.435	214	17	16.000	303	29	28.165	448
15	13	8.435	214	25	16.000	303	44	28.165	448
20	18	8.435	214	34	16.000	303	59	28.165	448
25	22	8.435	214	42	16.000	303	73	27.820	448
30	26	8.435	214	50	15.840	303	83	26.340	448
35	31	8.435	214	55	15.120	303	92	25.150	448
40	35	8.240	214	61	14.525	303	101	24.160	448
45	37	7.955	214	66	14.020	303	110	23.320	448
50	40	7.705	211	71	13.585	303	118	22.595	434
55	43	7.485	205	76	13.200	300	126	21.955	422
60	46	7.295	200	81	12.860	292	134	21.390	411
65	48	7.120	195	85	12.555	285	142	20.885	401
70	51	6.965	191	90	12.280	279	150	20.425	392

P<sub>M</sub> = 电机功率 [kW]  
T<sub>2</sub> = 总输出扭矩 [Nm], 服务系数 KA = 1,25  
F<sub>axW</sub> = 单根轴容许的轴向力 [kN]  
n<sub>2</sub> = 输出转速 [min<sup>-1</sup>]

### 选型指南:

1. 在额定功率表中, 首先确定合适的中心距参数;
2. 确定中心距后, 查找所需要的输出转速n<sub>2</sub>
3. 按需求, 在已确定的型号内选择电机功率P<sub>M</sub>, 或者输出扭矩T<sub>2</sub>
4. 确定齿轮箱型号后, 在尺寸参数表中查询齿轮箱的安装尺寸, 判断是否符合要求
5. 如没有查到可匹配的齿轮箱, 您可以将您的具体需求及适用标准发给我们, 我们会为您特殊定制符合要求的齿轮箱。

P<sub>M</sub> = motor power [kW]  
T<sub>2</sub> = total output torque [Nm] at KA = 1,25  
F<sub>axW</sub> = allowable axial force per shaft [kN]  
n<sub>2</sub> = output speed [min<sup>-1</sup>]

### Information to the tables:

1. Define your specific centre distance in the power rating table.
2. Select the output speed n<sub>2</sub> you require.
3. Look for the required motor power P<sub>M</sub> or your output torque T<sub>2</sub> in the selected line.
4. Take the gearbox size you have selected and confirm whether or not the installation dimensions suit your Extruder by referring to the geometry table.
5. If you are not able to find your requirements, our gearbox engineers will design your gearbox and its limiting criteria.

# DURUMAX<sup>®</sup> – TPM 3 DOS-V

## DURUMAX<sup>®</sup> 系列齿轮箱

### 异向旋转双螺杆齿轮箱

基于现代最前沿技术标准，亨设尔公司研发制造了DURUMAX<sup>®</sup> -TPM DOS系列齿轮箱，这为挤出机制造商提供了高质量的动力驱动系统，并在激烈的同类产品竞争中赢得了全球性的胜利。我们不断致力于将挤出机齿轮箱设计创新向前推进，把用户的日益增长的产能需求转变为现实。

### 应用领域 Examples of areas of application are:

管材挤出 Pipe Extrusion | 粉末挤出 Profile Extrusion | 造粒 Granulation

#### 设计特点:

- 亨设尔挤出机齿轮箱采用模块化设计，方便适应用户的不同要求。整台齿轮箱包括四个模块：减速级单元，止推轴承单元，分配级齿轮箱单元及用于连接料筒的适配箱单元。每一个模块可以单独更换，便于维护。齿轮箱箱体材料为减振灰铁的铸造箱体，壁厚并低噪音。
- 独特的动力分配级部分包含双斜齿轮传动，尽管空间有限，但具有极高的扭矩系数。在高输出转速下确保了轴承的使用寿命。3轴功率分配设计理念被广泛用于异向旋转挤出机齿轮箱制造。

#### 工程设计:

- 减速级单元和功率分配单元运用一组双斜齿齿轮组保证了齿轮箱整体的可靠性。
- 在挤出机工艺过程中，止推轴承承受挤出工艺过程中产生的背压。
- 直接驱动或V-带轮驱动
- 传输扭矩高达 54000Nm,并适用于所有传动比
- 所配备的滚动轴承均用德国制造的品牌，如: INA,FAG,SKF。
- 内置储油箱实现飞溅润滑与强制润滑相结合，可以应对紧急运行情况。
- 单独的润滑冷却系统
- 根据客户要求，可以选用圆柱体链接。
- 齿轮箱喷涂：喷底漆
- 齿轮设计采用齿面硬化，齿形修正优化技术处理从而最大化齿轮箱的负载能力。传动平稳，低振动成为亨设尔齿轮箱高质量的保证。
- 不同于只按理论计算确定齿轮的安全系数，我们将理论计算值定义齿轮设计安全系数与现场获得的外部干扰因素实际经验相结合。
- 齿轮箱采用强制润滑和飞溅润滑相结合，量身定制的冷却润滑油系统确保正确的散热和润滑，即使在恶劣的工况环境下，齿轮箱也可以实现最佳散热，最低损耗，使齿轮箱获得最高的效率。

#### 根据要求，亨设尔公司可以提供如下内容:

- 配置带有油过滤器的润滑系统
- 检测系统温度，压力 或流量的测试仪器
- 油位开关
- 监控螺杆转速的测试仪器
- 扭矩测试仪器
- 背压测量传感器
- 齿轮箱带可以铸上用户公司名称和公司标志
- 齿轮箱喷涂指定油漆

### Twin Shaft Extruder Gearbox counter-rotating

The DURUMAX<sup>®</sup> -TPM DOS from Henschel Antriebstechnik offers the Extruder builder high gearbox technology based on latest technical standards, which has been globally successful in hard competition to other products. We have forward-looking Extruder gearbox concepts for you which convert the day-to-day high requirements of the end user concerning output into reality.

#### An overview of your advantages:

- The Extruder gearbox consists of the gearbox modules step-down gear, thrust bearing housing, power divider, adapter housing or alternatively tie bars. Each of these individually modified and interchanged. The gearbox housing modules are made of vibration reducing, thick-walled, noise reducing grey cast iron.
- The unique power divider with a double helical gear set transfers the highest torque safely and reliably whilst taking up a minimum of space. High output speed and durability of the bearings are guaranteed. This 3-shaft power divider concept is the most popular concept world-wide in counter-rotating extrusion.

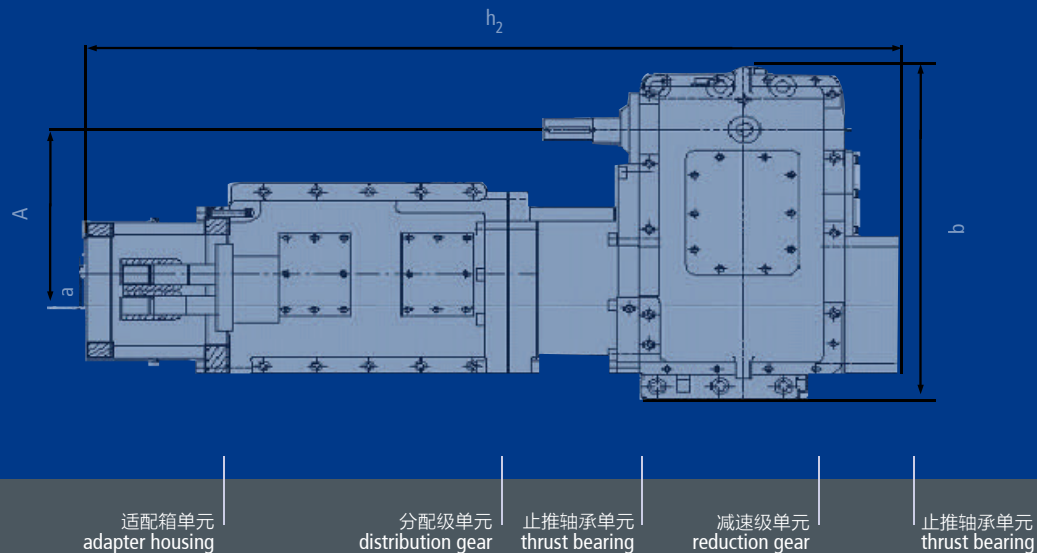
#### Engineering:

- Reliable design with a step-down gear and power divider with a double helical gear set
- Thrust bearings to pick up the highest thrust forces from the extrusion process
- Direct or V-belt drive
- Torque up to 54.000 Nm and all transmission ratios
- Brand name roller bearings from German manufacturers such as INA, FAG or SKF
- Splash and forced spray lubrication with integrated oil reservoir for emergency running properties
- Cooling system with separate lubrication system
- Cylinder and screw connections according to customer requirements
- Paintwork: priming paint
- The gears are case-hardened, correction-ground and optimised for the highest load capacity. The smoothness of running and low vibration of the Henschel gearboxes are a proof of their quality. We supply you with our specially designed topologically corrected gears, which enable exact adjustment of the flank fine geometry to the load and thus guarantees a well-balanced utilisation of material.
- In opposite of the theoretical calculation we define the safety factors for the gears and the field-experienced application factor for external disturbance variables.
- A combined splash and forced spray lubrication system guarantees optimal lubrication, even in unfavourable environmental conditions, best heat elimination and low losses.

#### On request we can also supply the following:

- Lubrication system with oil filter
- Monitoring of temperature, pressure or rate of flow
- Level switch
- Monitoring of the screw speed
- Torque measurement
- Load cells to measure back pressure forces
- The gearbox can be engraved with the company name and corporate logo
- Gearbox supplied with final coating





## 安装尺寸 Assembly dimensions

齿轮箱型号 gearbox size	主要尺寸参数 main dimensions mm				
	a	A	$h_2$	b	weight kg
TPM 2-52 DOS	44	250	1248	539	500
TPM 3-63 DOS-V	54	313,13	1390	615	710
TPM 3-68 DOS-V	55	313,13	1390	615	710
TPM 3-70 DOS	60	313,13	1390	615	710
TPM 3-75 DOS-V*	61	205	1555	560	920
TPM 3-87 DOS-V	74	426,16	1565	790	1.240
TPM 3-92 DOS-V	75,35	426,16	1565	790	1.240
TPM 3-94 DOS-V	76	426,51	1835	790	1.260
TPM 3-100 DOS-V	80,8	712,6	2483	1200	2.500
TPM 3-106 DOS-V	88	489,21	1835	915	2.085
TPM 3-110 DOS-V	90	490	1835	915	2.085
TPM 3-114 DOS-V	93	491,58	2100	915	2.100
TPM 3-130 DOS-V	106	674,9	2706	1420	4.000
TPM 3-135 DOS-V	110	585,55	2320	1080	3.770
TPM 3-140 DOS-V	114	587,63	2610	1080	3.800

\* 立式安装 vertical

## 安装位置及结构 Mounting position and structural shape

用户可以根据需求灵活选用安装方式，卧式安装或立式安装。根据系统整体电机的布置方式，分为Z型结构及U型结构形式。

The mounting positions are flexible and both horizontal and vertical variations can be selected.

It is to be differentiated between the Z and U form depending on the position of the motor.



左手方案  
mounting position left

右手方案  
mounting positions right

立式安装  
mounting positions vertical

U 型结构  
structural shape U

Z 型结构  
structural shape Z

# DURUMAX<sup>®</sup> – TPM 3 DOS-V

## 异向旋转双螺杆挤出机用齿轮箱

## Twin Shaft Extruder Gearbox counter-rotating

### 额定功率表 Power rating table

根据客户的特定的电机功率参数可以判断粗略的齿轮箱型号。表格中列出各个型号齿轮箱的功率已按DIN3990标准包含有整机运用安全系数，整机安全系数KA=1, 25. 轴承的使用寿命设计标准 $L_n > 20000h$ 。我们的工程师们将仔细检查用户对齿轮箱的要求以及极限条件，确保所提供的齿轮箱为您所要求的产品。

Your specific power data determines the provisional size of the gearbox. The power ratings in the table are designed in such a way that they guarantee sufficient safety factors of the gears in accordance with DIN 3990 with an application factor KA=1,25. The service life of the bearings is set at a standard of  $L_n > 20.000 h$ . Your requirements of the gearbox and their limiting criteria are of course checked by our gearbox engineers so that you receive a product which inspires you.

齿轮箱型号 gearbox size	TPM 2-52-DOS			TPM 3-63-DOS-V			TPM 3-68-DOS-V			TPM 3-70-DOS		
中心距 center distance	44 mm			54 mm			55 mm			60 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
5	1	2.000	67	3	5.800	121	3	6.200	139	3	6.200	151
10	2	2.000	67	6	5.800	121	7	6.200	139	7	6.200	151
15	3	2.000	67	10	5.800	121	10	6.200	139	10	6.200	151
20	4	2.000	67	13	5.800	121	14	6.200	139	14	6.200	151
25	5	2.000	67	16	5.800	121	17	6.200	139	17	6.200	151
30	6	2.000	67	19	5.800	121	21	6.200	139	21	6.200	151
35	7	2.000	67	23	5.800	121	24	6.200	139	24	6.200	145
40	8	2.000	67	26	5.800	121	28	6.200	139	28	6.200	140
45	9	2.000	67	28	5.600	121	30	5.985	135	30	5.985	135
50	10	2.000	67	30	5.425	121	32	5.800	131	32	5.800	131
55	11	1.945	67	32	5.270	121	35	5.635	127	35	5.635	127
60	12	1.895	63	35	5.135	121	37	5.490	124	37	5.490	124
齿轮箱型号 gearbox size	TPM 3-75-DOS-V			TPM 3-87-DOS-V			TPM 3-92-DOS-V			TPM 3-94-DOS-V		
中心距 center distance	61 mm			74 mm			75,35 mm			76 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
5	5	9.400	168	9	15.200	230	9	15.720	254	10	17.120	264
10	11	9.400	168	17	15.200	230	18	15.720	254	19	17.120	264
15	16	9.400	168	26	15.200	230	26	15.720	254	29	17.120	264
20	21	9.400	168	34	15.200	230	35	15.720	254	38	17.120	264
25	26	9.400	168	43	15.200	230	44	15.720	254	48	17.120	264
30	31	9.305	168	51	15.200	230	53	15.720	254	57	17.120	256
35	35	8.885	168	60	15.200	230	61	15.720	244	67	17.120	244
40	38	8.535	168	68	15.200	230	70	15.720	235	76	17.120	235
45	42	8.240	168	75	14.780	227	78	15.615	226	85	17.005	226
50	45	7.980	168	80	14.320	220	84	15.130	219	92	16.475	219
55	48	7.755	164	86	13.915	213	90	14.700	213	98	16.010	213
60	51	7.555	160	91	13.560	208	96	14.320	208	104	15.595	208

齿轮箱型号 gearbox size	TPM 3-100-DOS			TPM 3-106-DOS-V			TPM 3-110-DOS-V			TPM 3-114-DOS-V		
中心距 center distance	80,8 mm			88 mm			90 mm			92,5 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
5	12	21.660	299	13	23.000	334	14	24.800	363	17	30.865	389
10	24	21.660	299	26	23.000	334	28	24.800	363	35	30.865	389
15	36	21.660	299	39	23.000	334	42	24.800	363	52	30.865	389
20	49	21.660	299	52	23.000	334	56	24.800	363	69	30.865	389
25	61	21.660	299	64	23.000	334	69	24.800	363	86	30.865	389
30	73	21.660	299	77	22.765	334	83	24.550	363	104	30.865	372
35	85	21.660	299	85	21.735	334	92	23.440	355	121	30.865	355
40	96	21.365	299	94	20.885	324	101	22.515	341	133	29.655	341
45	104	20.620	299	102	20.155	312	110	21.735	329	144	28.620	329
50	112	19.980	299	109	19.530	303	118	21.000	319	155	27.730	319
55	120	19.415	299	117	18.980	294	126	20.465	310	166	26.950	310
60	127	18.915	299	124	18.490	287	134	19.935	302	177	26.255	302

齿轮箱型号 gearbox size	TPM 3-130-DOS-V			TPM 3-135-DOS-V			TPM 3-140-DOS-V		
中心距 center distance	105,7 mm			110 mm			114 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
5	22	39.545	506	26	47.125	546	30	54.005	587
10	44	39.545	506	53	47.125	546	61	54.005	587
15	66	39.545	506	79	47.125	546	91	54.005	587
20	89	39.545	506	106	47.125	546	121	54.005	587
25	111	39.545	506	132	47.125	546	151	54.005	555
30	126	37.440	506	158	47.125	525	182	54.005	525
35	140	35.745	502	176	44.995	502	202	51.560	501
40	154	34.340	482	194	43.225	482	222	49.535	482
45	167	33.145	465	210	41.725	465	241	47.815	465
50	180	32.115	451	226	40.425	451	260	46.325	451
55	192	31.210	438	242	39.285	438	277	45.020	438
60	204	30.405	427	257	38.270	427	295	43.855	427

$P_M$  = 电机功率 [kW]

$T_2$  = 总输出扭矩 [Nm], 服务系数 KA = 1,25

$F_{axW}$  = 单根轴容许的轴向力 [kN]

$n_2$  = 输出转速 [ $\text{min}^{-1}$ ]

$P_M$  = motor power [kW]

$T_2$  = total output torque [Nm] at KA = 1,25

$F_{axW}$  = allowable axial force per shaft [kN]

$n_2$  = output speed [ $\text{min}^{-1}$ ]

#### Information to the tables:

1. Define your specific centre distance in the power rating table.
2. Select the output speed  $n_2$  you require.
3. Look for the required motor power  $P_M$  or your output torque  $T_2$  in the selected line.
4. Take the gearbox size you have selected and confirm whether or not the installation dimensions suit your Extruder by referring to the geometry table.
5. If you are not able to find your requirements, our gearbox engineers will design your gearbox and its limiting criteria.

#### 选型指南:

1. 在额定功率表中, 首先确定合适的中心距参数;
2. 确定中心距后, 查找所需要的输出转速 $n_2$ ;
3. 按需求, 在已确定的型号内选择电机功率 $P_M$ , 或者输出扭矩 $T_2$ ;
4. 确定齿轮箱型号后, 在尺寸参数表中查询齿轮箱的安装尺寸, 判断是否符合要求
5. 如没有查到可匹配的齿轮箱, 您可以将您的具体需求及适用标准发给我们, 我们会为您特殊定制符合要求的齿轮箱。



# DURUMAX<sup>®</sup> – T1MAX C

## 异向旋转，双螺杆挤出机齿轮箱

T1MAX<sup>®</sup> 系列齿轮箱是继TPM3 DOS-V系列后新开发的挤出机用齿轮箱，其充分运用全球公认的3轴功率分配设计理念。T1MAX<sup>®</sup>系列齿轮箱，采用最高效的动力设计原理使其在同类型的齿轮箱中具有最高的性能(比同类型的齿轮箱输出扭矩高15%以上)。

## Twin Shaft Extruder Gearbox counter-rotating

The new Extruder gearbox T1MAX<sup>®</sup> is the consistent development of the Extruder gearbox series TPM 3 DOS-V with the proved 3-shaft distribution concept, which is world-wide the most popular concept in counter-rotating extrusion. With the T1MAX<sup>®</sup> we offer the most efficient concept with the highest performance in its category. (Torque enhancement of more than 15%)

## 应用领域 Examples of areas of application are:

管材挤出 Pipe Extrusion | 型材挤出 Profile Extrusion | 造粒 Granulation

### 设计特点:

- 亨设尔挤出机齿轮箱采用模块化设计，方便适应用户的不同要求。整套齿轮箱包括四个模块：减速级单元，止推轴承单元，分配级齿轮箱单元及用于连接料筒的适配箱单元。每一个模块可以单独更换，便于维护。齿轮箱箱体材料为减振灰铁的铸造箱体，厚壁，低噪音。
- 分配级部分包含双斜齿轮传动，尽管空间有限，但具有极高的扭矩系数。在高输出转速下确保了轴承的使用寿命。3轴功率分配设计理念被广泛用于异向旋转挤出机齿轮箱制造。

### 工程设计:

- 减速级单元和功率分配单元运用一组双斜齿齿轮组保证了整体的稳定性。
- 在挤出机工艺过程中，止推轴承承受工艺过程中所产生的背压。
- 直接驱动或V-带轮驱动
- 传输扭矩高达 135000Nm,并适用于所有传动比
- 所配备的滚动轴承均用德国制造的品牌，如：INA,FAG,SKF。
- 内置储油箱实现飞溅润滑与强制润滑相结合，可以应对紧急运行情况。
- 单独的润滑冷却系统
- 根据客户要求，可以选用圆柱状连接或螺纹连接
- 齿轮箱涂漆: 涂底漆
- 齿轮设计采用齿面硬化处理，齿形优化修正磨齿，使其具有最高的承载能力。传动平稳，低振动证明亨设尔齿轮箱具有最高的质量。我们向您提供的齿轮是经过拓扑学修正技术优化修正后的齿轮，按负载情况调节齿面负载受力，使其受力更均匀并充分利用材料的机械性能。
- 不同于只按理论计算确定齿轮的安全系数，我们将理论计算值定义齿轮设计安全系数与现场获得的外部干扰因素实际经验相结合。
- 齿轮箱采用强制润滑和飞溅润滑相结合，量身定制的冷却润滑油系统确保正确的散热和润滑，即使在恶劣的工况环境下，齿轮箱也可以实现最佳散热，最低损耗，使齿轮箱获得最高的效率

### 根据需要，我们可以提供以下产品：

- 配置带有油过滤器的润滑系统
- 系统温度，压力，流量监测元件
- 位置开关
- 螺杆转速监控元件
- 扭矩测试元件
- 测量背压的传感器
- 齿轮箱箱体可以铸上用户的公司名称和公司标志
- 齿轮箱喷涂指定油漆

### An overview of your advantages:

- The Extruder gearbox consists of the gearbox modules step-down gear, thrust bearing housing, power divider, adapter housing or alternatively tie bars. Each of these modules can be individually modified and interchanged. The gearbox housing modules are made of vibration reducing, thick-walled, noise reducing grey cast iron.
- The unique power divider with a double helical gear set transfers the highest torque safely and reliably whilst taking up a minimum of space. High output speed and durability of the bearings are guaranteed. This 3-shaft power divider concept is the most popular concept world-wide in counter-rotating extrusion.

### Engineering:

- Reliable design with a step-down gear and power divider with a double helical gear set
- Thrust bearings to pick up the highest thrust forces from the extrusion process
- Direct or V-belt drive
- Torque up to 135.000 Nm and all transmission ratios
- Brand name roller bearings from German manufacturers such as INA, FAG or SKF
- Splash and forced spray lubrication with integrated oil reservoir for emergency running properties
- Cooling system with separate lubrication system
- Cylinder and screw connections according to customer requirements
- Paintwork: priming paint
- The gears are case-hardened, correction-ground and optimised for the highest load capacity. The smoothness of running and low vibration of the Henschel gearboxes are a proof of their quality. We supply you with our specially designed topologically corrected gears, which enable exact adjustment of the flank fine geometry to the load and thus guarantees a well-balanced utilisation of material.
- In opposite of the theoretical calculation we define the safety factors for the gears and the field-experienced application factor for external disturbance variables.
- A combined splash and forced spray lubrication system guarantees optimal lubrication, even in unfavourable environmental conditions, best heat elimination and low losses.

### On request we can also supply the following:

- Lubrication system with oil filter
- Monitoring of temperature, pressure or rate of flow
- Level switch
- Monitoring of the screw speed
- Torque measurement
- Load cells to measure back pressure forces
- The gearbox can be engraved with the company name and corporate logo
- Gearbox supplied with final coating

## 额定功率表 Power rating table

根据客户的特定的电机功率参数可以判断粗略的齿轮箱型号。表格中列出各个型号齿轮箱的功率已按DIN3990标准包含有整机运用安全系数，整机安全系数KA=1, 25. 轴承的使用寿命设计标准 $L_h > 20000h$ 。我们的工程师们将仔细检查用户对齿轮箱的要求以及极限条件，确保所提供的齿轮箱为您所要求的产品。

Your specific power data determines the provisional size of the gearbox. The power ratings in the table are designed in such a way that they guarantee sufficient safety factors of the gears in accordance with DIN 3990 with an application factor KA=1,25. The service life of the bearings is set at a standard of  $L_h > 20.000 h$ . Your requirements of the gearbox and their limiting criteria are of course checked by our gearbox engineers so that you receive a product which inspires you.

齿轮箱型号 gearbox size	T1MAX 92 C			T1MAX 110 C			T1MAX 125 C			T1MAX 135 C			T1MAX 170 C		
中心距 center distance	75,35 mm			90 mm			108 mm			110 mm			146 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
5	10	17.970	254	17	30.252	363	28	50.000	363	32	58.000	363	75	135.000	363
10	20	17.970	254	34	30.252	363	56	50.000	363	65	58.000	363	150	135.000	363
15	30	17.970	254	51	30.25	363	84	50.000	363	97	58.000	363	226	135.000	363
20	40	17.970	254	67	30.252	363	111	50.000	363	129	58.000	363	301	135.000	363
25	50	17.970	254	84	30.252	363	139	50.000	363	162	58.000	363	376	135.000	363
30	60	17.970	254	100	29.947	363	165	49.496	363	192	57.415	363	447	133.639	363
35	70	17.970	244	111	28.593	355	184	47.258	355	214	54.819	355	497	127.597	355
40	80	17.970	235	122	27.465	341	202	45.393	341	235	52.656	341	546	122.561	341
45	89	17.850	226	133	26.513	329	220	43.821	329	255	50.832	329	593	118.316	329
50	96	17.296	219	143	25.617	319	236	42.339	319	274	49.113	319	637	114.315	319
55	103	16.804	213	153	24.964	310	253	41.260	310	293	47.862	310	683	111.402	310
60	109	16.370	208	163	24.317	302	269	40.192	302	312	46.622	302	725	108.517	302
65	116	15.981	203	172	23.738	295	284	39.234	295	330	45.511	295	767	105.931	295
70	122	15.632	198	181	23.220	288	299	38.377	288	347	44.517	288	808	103.618	288

$P_M$  = 电机功率 [kW]

$T_2$  = 总输出扭矩 [Nm], 服务系数 KA = 1,25

$F_{axW}$  = 单根轴容许的轴向力 [kN]

$n_2$  = 输出转速 [ $min^{-1}$ ]

$P_M$  = motor power [kW]

$T_2$  = total output torque [Nm] at KA = 1,25

$F_{axW}$  = allowable axial force per shaft [kN]

$n_2$  = output speed [ $min^{-1}$ ]

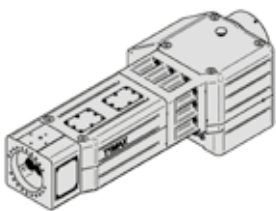
### 选型指南:

1. 在额定功率表中，首先确定合适的中心距参数；
2. 确定中心距后，查找所需要的输出转速 $n_2$ ；
3. 按需求，在已确定的型号内选择电机功率 $P_M$ ，或者输出扭矩 $T_2$ ；
4. 确定齿轮箱型号后，在尺寸参数表中查询齿轮箱的安装尺寸，判断是否符合要求
5. 如没有查到可匹配的齿轮箱，您可以将您的具体需求及适用标准发给我们，我们会为您特殊定制符合要求的齿轮箱。

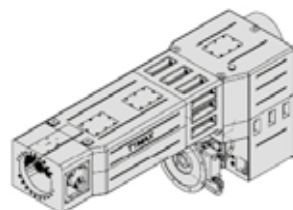
### Information to the tables:

1. Define your specific centre distance in the power rating table.
2. Select the output speed  $n_2$  you require.
3. Look for the required motor power  $P_M$  or your output torque  $T_2$  in the selected line.
4. Take the gearbox size you have selected and confirm whether or not the installation dimensions suit your Extruder by referring to the geometry table.
5. If you are not able to find your requirements, our gearbox engineers will design your gearbox and its limiting criteria.

## 齿轮箱安装方式及结构 Mounting position and structural shape



U-型 左手方案 left-hand, U-form



U-型 立式安装 vertical, U-form

# DURUMAX® – TGE 3 DOS

## 同向旋转双螺杆挤出机齿轮箱

基于现代最新技术标准，亨舍尔公司研发制造了DURUMAX®-TGE DOS系列齿轮箱。这为挤出机制造商提供了高质量的动力驱动系统部件，并在激烈的同类产品竞争中赢得了全球性的胜利。我们不断致力于将挤出机齿轮箱设计创新向前推进，把用户的日益增长的产能需求转变为现实。

## 应用领域 Examples of areas of application are:

造粒 Compounding | 直接挤出 Direct Extrusion | 食品及宠物食品挤出 Food and Petfood Extrusion

### 设计特点:

- 亨舍尔挤出机齿轮箱采用模块化设计，方便适应用户的不同要求。整套齿轮箱包括四个模块：减速级单元，止推轴承单元，分配级齿轮箱单元及用于连接料筒的适配箱单元。每一个模块可以单独更换，便于维护。齿轮箱体材料为减振灰铁的铸造箱体，壁厚并低噪音。
- 独特设计的分配级部分包含双斜齿轮传动，尽管空间有限，但具有极高的扭矩系数。在高输出转速下确保了轴承的使用寿命。3轴功率分配设计理念被广泛用于异向旋转挤出机齿轮箱制造。

### 工程设计:

- 减速级单元和运=采用一对双斜齿齿轮组的功率分配单元保证了齿轮箱整体的可靠性。
- 在挤出机工艺过程中，止推轴承承受工艺过程中所产生的背压。
- 直接驱动或V-带轮驱动
- 传输扭矩高达 25.400Nm,并适用于所有传动比
- 所配备的滚动轴承均用德国制造的品牌，如: INA,FAG,SKF。
- 内置储油箱实现飞溅润滑与强制润滑相结合，可以应对紧急运行情况
- 单独的润滑冷却系统
- 根据客户要求，可以选用圆柱状连接或螺纹连接。
- 齿轮箱喷涂：喷底漆
- 齿轮设计采用齿面硬化，齿形拓扑学修正优化技术处理使齿轮箱的负载能力达到最大化。传动平稳，低振动成为亨舍尔齿轮箱高质量的保证。
- 将理论计算值定义齿轮设计安全系数与现场获得的外部干扰因素实际经验相结合。
- 齿轮箱采用强制润滑和飞溅润滑相结合，量身定制的冷却润滑油系统确保正确的散热和润滑，即使在恶劣的工况环境下，齿轮箱也可以实现最佳散热，最低损耗，使齿轮箱获得最高的效率。

### 根据需要，我们可以提供以下产品:

- 配置带有油过滤器的润滑系统
- 系统温度，压力，流量监测元件
- 位置开关
- 螺杆转速监控元件
- 扭矩测试元件
- 齿轮箱带有公司名称和公司标
- 齿轮箱喷涂指定油漆

## Twin Shaft Extruder Gearbox co-rotating

The DURUMAX®-TGE DOS from Henschel Antriebstechnik offers the Extruder builder high gearbox technology based on latest technical standards, which has been globally successful in hard competition to other products. We have forwardlooking Extruder gearbox concepts for you which convert the day-to-day high requirements of the end user concerning output into reality.

### An overview of your advantages:

- The Extruder gearbox consists of the gearbox modules step-down gear, thrust bearing housing, power divider, adapter housing or alternatively tie bars. Each of these modules can be individually modified and interchanged. The gearbox housing modules are made of vibration reducing, thick-walled, noise reducing grey cast iron.
- The unique power divider with a double helical gear set transfers the highest torque safely and reliably whilst taking up a minimum of space. High output speed and durability of the bearings are guaranteed. This 3-shaft power divider concept is the most popular concept world-wide in co-rotating extrusion.

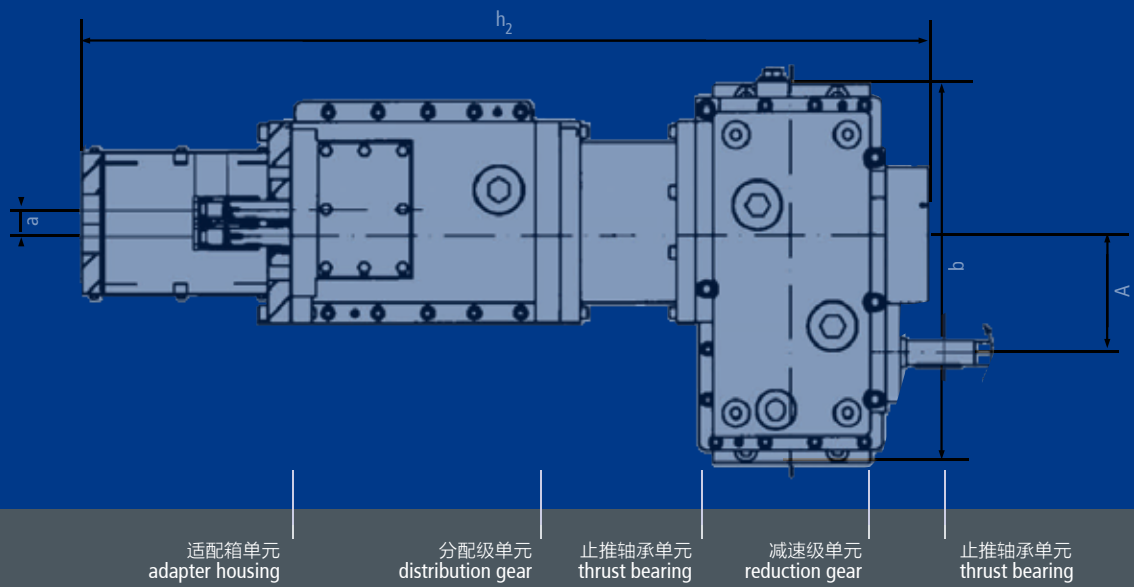
### Engineering:

- Reliable design with a step-down gear and power divider with a double helical gear set
- Thrust bearings to pick up the highest thrust forces from the extrusion process
- Torque up to 25.400 Nm and all transmission ratios
- Brand name roller bearings from German manufacturers such as INA, FAG or SKF
- Splash and forced spray lubrication with integrated oil reservoir for emergency running properties
- Cooling system with separate lubrication system
- Cylinder and screw connections according to customer requirements
- Paintwork: priming paint
- The gears are case-hardened, correction-ground and optimised for the highest load capacity. The smoothness of running and low vibration of the Henschel gearboxes are a proof of their quality. We supply you with our specially designed topologically corrected gears, which enable exact adjustment of the flank fine geometry to the load and thus guarantees a wellbalanced utilisation of material.
- In opposite of the theoretical calculation we define the safety factors for the gears and the field-experienced application factor for external disturbance variables.
- A combined splash and forced spray lubrication system guarantees optimal lubrication, even in unfavourable environmental conditions, best heat elimination and low losses.

### On request we can also supply the following:

- Lubrication system with oil filter
- Monitoring of temperature, pressure or rate of flow
- Level switch
- Monitoring of the screw speed
- Torque measurement
- Load cells to measure back pressure forces
- The gearbox can be engraved with the company name and corporate logo
- Gearbox supplied with final coating





## 安装尺寸 Assembly dimensions

齿轮箱型号 gearbox size	主要尺寸参数 main dimensions mm				
	a	A	$h_2$	b	weight kg
TGE 3-26-DOS	22	120	636,5	395	108
TGE 3-34-DOS	30	138	960	475	218
TGE 3-37-DOS	31	138	960	475	218
TGE 3-40-DOS	33,4	135,6	973	475	230
TGE 3-48-DOS	40	175	1253	525	440
TGE 3-50-DOS*	42	21	1290	379	465
TGE 3-53-DOS*	43	175	1286	565	456
TGE 3-63-DOS	51,75	200	1514	652	764
TGE 3-65-DOS*	52	26	1336	460	870
TGE 3-70-DOS	58,5	225	1693	740	940
TGE 3-72-DOS	59,5	225	1769	740	940
TGE 3-75-DOS*	60	30	1532	530	1.095
TGE 3-85-DOS	70	280	1809	880	1.530
TGE 3-95-DOS*	78	44,5	2190	560	1.750
TGE 3-130-DOS*	110	55	2530	830	4.420

\* 立式安装 vertical

$h_2$  是一个估算值, 当特定的使用环境确定后其值才能被确定。  $h_2$  are approx. values only as they vary depending on the adapter situation

## 安装方式 Mounting position



右手方案, Z-型 right-hand, Z-form



立式安装, Z-型 vertical, Z-form

# DURUMAX<sup>®</sup> – TGE 3 DOS

## 同向旋转双螺杆挤出机用齿轮箱

## Twin Shaft Extruder Gearbox co-rotating

### 额定功率表 Power rating table

根据客户的特定的电机功率参数可以判断粗略的齿轮箱型号。表格中列出各个型号齿轮箱的功率已按DIN3990标准包含有整机运用安全系数，整机安全系数KA=1, 25. 轴承的使用寿命设计标准 $L_{10} > 20000h$ 。我们的工程师们将仔细检查用户对齿轮箱的要求以及极限条件，确保所提供的齿轮箱为您所要求的产品。

Your specific power data determines the provisional size of the gearbox. The power ratings in the table are designed in such a way that they guarantee sufficient safety factors of the gears in accordance with DIN 3990 with an application factor KA=1,25. The service life of the bearings is set at a standard of  $L_{10} > 20.000 h$ . Your requirements of the gearbox and their limiting criteria are of course checked by our gearbox engineers so that you receive a product which inspires you.

齿轮箱型号 gearbox size	TGE 3-26-DOS			TGE 3-34-DOS			TGE 3-37-DOS			TGE 3-40-DOS		
中心距 center distance	22 mm			30 mm			31 mm			33,4 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
300	8	245	2	20	620	6	23	685	16	28	850	24
350	9	245	2	24	620	5	26	685	16	33	850	24
400	11	245	2	27	620	5	30	685	16	37	850	24
450	12	245	2	31	620	5	34	685	16	42	850	24
500	13	245	2	34	620	5	38	685	16	47	850	24
550	15	245	2	38	620	5	41	685	16	51	850	24
600	16	245	2	41	620	5	45	685	16	56	850	24
650	17	240	2	43	605	5	48	670	16	60	850	24
700	18	235	2	46	595	4	50	655	16	65	850	24
800	20	225	2	50	570	4	55	630	16	75	850	24
900	21	215	2	54	550	4	60	605	16	80	810	20
1.000	23	210	2	59	535	4	65	590	16	85	780	20
1.100	25	205	2	63	520	4	69	570	16	95	780	20
1.200	26	200	2	67	505	4	73	555	16	100	780	20
齿轮箱型号 gearbox size	TGE 3-48-DOS			TGE 3-50-DOS			TGE 3-53-DOS			TGE 3-63-DOS		
中心距 center distance	40 mm			42 mm			43 mm			51,75 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
300	49	1.470	26	55	1.655	27	60	1.830	29	105	3.190	45
350	57	1.470	26	64	1.655	27	70	1.830	29	123	3.190	45
400	65	1.470	26	73	1.655	27	80	1.830	29	140	3.190	45
450	73	1.470	26	82	1.655	27	90	1.830	29	158	3.190	45
500	81	1.470	26	91	1.655	27	101	1.830	29	175	3.190	45
550	89	1.470	26	100	1.655	27	111	1.830	29	193	3.190	45
600	97	1.470	26	109	1.655	27	121	1.830	29	210	3.190	45
650	103	1.435	26	116	1.615	27	128	1.785	29	222	3.110	45
700	108	1.405	26	122	1.580	27	134	1.745	29	234	3.045	44
800	119	1.350	26	134	1.520	27	148	1.675	29	257	2.925	43
900	129	1.305	26	145	1.465	27	160	1.620	29	279	2.820	41
1.000	139	1.265	26	156	1.420	27	173	1.570	29	301	2.735	40
1.100	148	1.225	26	167	1.380	27	184	1.525	29	321	2.660	39
1.200	158	1.195	26	177	1.345	27	196	1.485	29	342	2.590	38

齿轮箱型号 gearbox size	TGE 3-65-DOS			TGE 3-70-DOS			TGE 3-72-DOS			TGE 3-75-DOS		
中心距 center distance	52 mm			58,5 mm			59,5 mm			60 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
300	105	3.190	45	152	4.605	55	160	4.845	58	160	4.845	58
350	123	3.190	45	177	4.605	55	186	4.845	58	186	4.845	58
400	140	3.190	45	203	4.605	55	213	4.845	58	213	4.845	58
450	158	3.190	45	228	4.605	55	240	4.845	58	240	4.845	58
500	175	3.190	45	253	4.605	55	266	4.845	58	266	4.845	58
550	193	3.190	45	278	4.605	55	293	4.845	58	293	4.845	58
600	210	3.190	45	304	4.605	55	320	4.845	58	320	4.845	58
650	222	3.110	45	321	4.495	55	338	4.730	58	338	4.730	58
700	234	3.045	44	338	4.395	55	356	4.625	58	356	4.625	58
800	257	2.925	43	372	4.225	55	391	4.445	57	391	4.445	57
900	279	2.820	41	403	4.075	55	425	4.290	55	425	4.290	55
1.000	301	2.735	40	434	3.950	53	457	4.155	53	457	4.155	53
1.100	321	2.660	39	464	3.840	52	489	4.040	52	489	4.040	52
1.200	342	2.590	38	493	3.740	50	519	3.935	50	519	3.935	50

齿轮箱型号 gearbox size	TGE 3-85-DOS			TGE 3-95-DOS			TGE 3-130-DOS		
中心距 center distance	70 mm			78 mm			110 mm		
$n_2$ [rpm]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]	$P_M$ [kW]	$T_2$ [Nm]	$F_{axW}$ [kN]
300	260	7.890	81	325	9.840	101	834	25.400	192
350	304	7.890	81	379	9.840	101	973	25.400	192
400	347	7.890	81	433	9.840	101	1.112	25.400	192
450	390	7.890	81	487	9.840	101	1.232	25.019	189
500	434	7.890	79	541	9.840	101	1.348	24.644	186
550	477	7.890	77	595	9.840	101	1.461	24.274	183
600	520	7.890	75	649	9.840	101	1.546	23.546	178
650	550	7.700	73	687	9.605	101	1.625	22.839	173
700	580	7.530	72	723	9.395	98	1.697	22.154	167
800	637	7.235	69	794	9.025	95	1.881	21.490	162
900	691	6.985	66	862	8.715	91	-	-	-
1.00	744	6.770	64	928	8.440	88	-	-	-
1.100	796	6.575	63	992	8.205	86	-	-	-
1.200	845	6.410	61	1.055	7.990	84	-	-	-

$P_M$  = 电机功率 [kW]

$T_2$  = 总输出扭矩 [Nm], 服务系数  $KA = 1,25$

$F_{axW}$  = 单根轴容许的轴向力 [kN]

$n_2$  = 输出转速 [ $\text{min}^{-1}$ ]

#### 选型指南:

1. 在额定功率表中, 首先确定合适的中心距参数;
2. 确定中心距后, 查找所需要的输出转速 $n_2$ ;
3. 按需求, 在已确定的型号内选择电机功率 $P_M$ , 或者输出扭矩 $T_2$ ;
4. 确定齿轮箱型号后, 在尺寸参数表中查询齿轮箱的安装尺寸, 判断是否符合要求
5. 如没有查到可匹配的齿轮箱, 您可以将您的具体需求及适用标准发给我们, 我们会为您特殊定制符合要求的齿轮箱。

$P_M$  = motor power [kW]

$T_2$  = total output torque [Nm] at  $KA = 1,25$

$F_{axW}$  = allowable axial force per shaft [kN]

$n_2$  = output speed [ $\text{min}^{-1}$ ]

#### Information to the tables:

1. Define your specific centre distance in the power rating table.
2. Select the output speed  $n_2$  you require.
3. Look for the required motor power  $P_M$  or your output torque  $T_2$  in the selected line.
4. Take the gearbox size you have selected and confirm whether or not the installation dimensions suit your Extruder by referring to the geometry table.
5. If you are not able to find your requirements, our gearbox engineers will design your gearbox and its limiting criteria.



# TA 型油冷却器润滑系统

## TA Oil Cooling and Lubrication Units

### 根据不同运用环境，特殊定制油冷却与润滑单元

我们自有品牌的定制油冷却与润滑单元优化了亨设尔DURUMAX®系列挤出机用齿轮箱系统润滑环境，保证了齿轮箱在各种负载下高效的散热。

### Tailor made oil cooling and lubrication Units for every Application

Our tailor made oil cooling and lubrication units ensure optimum lubrication of our DURUMAX® gearboxes and a efficient heat elimination in every range of performance.requirements of the end user concerning output into reality.

#### 特性:

- 每一个特定的需求，其所配备的油冷却与润滑单元的安装尺寸各异。
- 标准的元器件包括:
  - 电动油泵
  - 热交换器
  - 压力开关
  - 油过滤器
- 每一个油冷却润滑系统可以通过以下方式单独调节（选配）
  - 带有显示装置的可切换式双油过滤器
  - 温度计，压力计
  - 冷却水温控阀

#### Features:

- For every application the right dimensioned oil cooling and lubrication unit
- Wide range of standard units consisting of:
  - electrical driven oil-pump
  - heat-exchanger
  - pressure switch
  - oil-filter
- Each unit can be adjusted individually e.g. with
  - switchable double oil-filter with impurifi cation display
  - thermometer, manometer
  - thermostat valve for cooling water flow

#### 技术参数 Technical Details:

型号 type	冷却性能 cooling capacity [kW]	循环油量 circulating oil quantity [l/min]
TA 2,5-6-320	2,5	6
...	...	...
TA 265-700-320	265	700



## 客户的满意，正是我们所追求的 We want you to be pleased with us

我们已建立了自己的质量方针，希望能为客户提供最高标准的产品与服务。根据DIN EN ISO 9001相关标准，引进了最前沿的质量管理方针体系，做好为每一个客户提供优质服务。为每一个客户在最少成本下生产更好的产品，这是我们一直追求的永恒目标。

Our policy of quality has established itself within our company code. We wish to offer our customers products and services of the highest standard. For this reason we have introduced an apparatus for a contract based quality management system according to DIN EN ISO 9001. This system is applied to every contract. We persue the permanent target of producing even better products with less deviances.

无论是工作于生产一线还是企业管理者，亨设尔全体员工一致遵循此质量管理体系的要求尽心尽力的为客户服务。

亨设尔公司是德国动力传输工程研究协会的会员之一（简称 FVA），作为FVA团队的一员，我们的设计人员通过和研究协会的众多会员合作(项目课题包括大齿轮，蜗轮蜗杆齿轮箱，计算机模拟计算系统，油润滑产品等)中，可以在第一时间接触到最前沿的研究成果，并不断将其这些最前沿技术充分运用于我们的产品中。

**客户的满意，正是我们所追求的并不断激励着我们前行。**

Our policy of quality has established itself within our company code. We wish to offer our customers products and services of the highest standard. For this reason we have introduced an apparatus for a contract based quality management system according to DIN EN ISO 9001. This system is applied to every contract. We persue the permanent target of producing even better products with less deviances.

Henschel Antriebstechnik supports its claim to quality as a member company of the "Forschungsvereinigung Antriebstechnik e.V." (FVA). By taking part in numerous FVA-teams working on such subjects as spur gears, materials, worm gearboxes, computer calculation and simulation as well as oils and lubrication our engineers are actively informed of the most up to date research results. This knowledge is then constantly transfered to our products.

**We want you to be pleased with us. Your success is our motivation!**

# 广泛应用领域 Wide Variety of Applications

型材 Profile | 管材 Pipe | 木塑 WPC | 食品 Food | 宠物食品 Petfood | 造粒 Compounds









## 实践证明，亨设尔产品与服务，是您最佳的选择 Henschel service proven as the best choice for all cases

亨设尔公司以其最高的产品质量及可靠性闻名全球。基于此，我们一致的理念确保了我们所建立的系统成为可能。我们掌握最先进且必要的齿轮箱设计技术，选择我们的产品，是您的系统拥有最高输出的关键因素。我们为您提供最好的服务。

Henschel is known worldwide for its high quality and durability. On this basis, it is our philosophy to ensure the highest possible availability of our systems. We master all technologies necessary to assess the gears as part of your high available equipment. In line with this we offer you the best possible service.

亨设尔是一家在动力传动技术方面领先的德国公司，拥有200多年的历史经验。这样一家拥有悠久历史沉淀的公司，几近唯一。因为我们的服务也是独特并最好的。

We are a German engineering company with over 200 years of experience. Few companies can rely on such a vast accumulated know-how. This makes our service unique.

您选择亨设尔公司挤出机齿轮箱，我们为您提供产品终身服务。

**Service for the entire life cycle of your Extruder gearbox**

**齿轮箱安装与调试 教育 | 培训 | 测试 | 特殊工具**

**Installation and commissioning Schooling | Training | Start-up service | Special Tools**

从系统的调试与试运转过程中，您可以充分利用我们的专业技术来达到您的系统目标。无论何时何地，只要您需要，亨设尔公司将随时为您提供当地的技术人员为您提供服务。我们将为您的齿轮箱安装做好一切准备，为您提供成功且持久的操作服务。

From the commissioning and start-up of its systems, you can use our professional knowledge for your purposes. We assist you with the installation of your gear with our Henschel local specialists, wherever and whenever you need us. We will prepare you for your gear and give you a successful and long-lasting operation.

**齿轮箱的操作 监控 | 移动服务 | 工厂数据收集**

**During Operation Monitoring | Mobile Services | Plant Data Collection**

亨设尔公司为客户提供现场操作方面大力支持，并将我们的技术运用于您的产品，甚至于其他的产品。从您的所在地，我们提供操作运行支持，并将我们的技术运用到你们的产品上。无论何时何地，只要您需要，我们将随时候命，为您提供专业的数据信息。从而最大化地实现您的工作输出。同时也开始准备您将来的需求。

We provide on-site operational, energetic support and bring to you our knowledge in your production - even for other products. At your location, we provide operational support and put our knowledge to your production. We are there for you worldwide, wherever and whenever you need us. With „Go Smart“ we provide you with exclusive and confidential operational data – for you to maximise your current work load and prepare you for the future.

**采购政策 备件平台 | 财务 | 租赁 | 传动装置 | 翻新 | 零件更换 | 维修**  
我们采用快速响应政策，为您快速专业的更换零部件及装置。在产品接近使用寿命时，为您提供更换计划，或给予您新的采购计划建议。包括其他品牌齿轮箱在内的所有产品维修服务，我们都会及时处理。我们的售后专家会全力以赴找出解决方案。

**Procurement policy Spare parts platform | Financing | Rentals | Transmission Refurbishment | Replacement Parts | Repair**

We provide you with exclusive and fast replacement of parts or devices before the day is out! At the end of the life cycle, we offer a refurbishment plan, or advise you as part of a new acquisition. For all types of repairs we are competently and quickly available, including repairs on gears from other manufacturers. Our specialists are eager to find solutions for your challenges.

**亨设尔产品性能提高计划**

**Henschel performance program**

亨设尔公司是您值得信赖的合作伙伴。其始终致力于为您的最大利益不断改善产品的性能，并与您分享其专业技术。在持续的维护中，亨设尔公司为您特殊定制产品性能提高计划。

With Henschel you have a partner who is targeted to the sustainable improvement of system availability and performance and to sharing their expert knowledge in your home base. The Henschel performance program is tailored to challenges through care and maintenance.

无论何时何地，只要您需要，亨设尔专家将时刻准备为您服务。

**Henschel local specialists, wherever and whenever they are needed.**







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